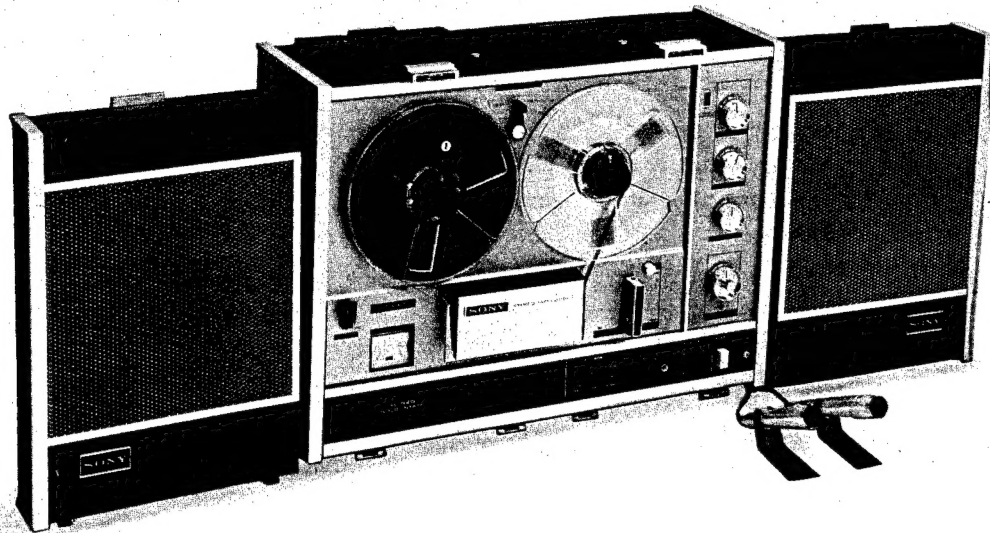


TC-540



Specifications

Power Requirements: AC 50/60 Hz, 100, 110, 117, 125, 220, & 240 V, 65W

Reel Size: 7 inches or smaller

Tape Speeds: $7\frac{1}{2}$ ips, $3\frac{3}{4}$ ips, $1\frac{7}{8}$ ips (19 cm/s, 9.5 cm/s, 4.8 cm/s)

Frequency Response: 30~20,000 Hz at $7\frac{1}{2}$ ips (19 cm/s)
30~13,000 Hz at $3\frac{3}{4}$ ips (9.5 cm/s)
30~10,000 Hz at $1\frac{7}{8}$ ips (4.8 cm/s)

Flutter and Wow: Less than 0.09% at $7\frac{1}{2}$ ips (19 cm/s)
Less than 0.12% at $3\frac{3}{4}$ ips (9.5 cm/s)
Less than 0.16% at $1\frac{7}{8}$ ips (4.8 cm/s)

Signal-to-Noise Ratio: Better than 50 dB

Harmonic Distortion: Less than 2% at normal recording level

Recording Time: 4-Track stereophonic
(with 1,800 ft tape) 1 hr 30 min at $7\frac{1}{2}$ ips (19 cm/s)
3 hrs at $3\frac{3}{4}$ ips (9.5 cm/s)
6 hrs at $1\frac{7}{8}$ ips (4.8 cm/s)

4-Track monophonic
3 hrs at $7\frac{1}{2}$ ips (19 cm/s)
6 hrs at $3\frac{3}{4}$ ips (9.5 cm/s)
12 hrs at $1\frac{7}{8}$ ips (4.8 cm/s)

Inputs: Microphone Inputs (2)
Impedance, 600 Ω
Maximum Sensitivity, -73 dBs (0.19 mV)
Auxiliary Inputs (2)
Impedance, 100k Ω

Maximum Sensitivity, -20 dBs (0.078 V)
Rec./P.B. Connector (1)

Impedance 10k Ω

Maximum Sensitivity -40 dBs (7.8 mV)

Outputs: Line Outputs..... (2)

Impedance 100k Ω

Output Level 0 dBs (0.775 V)

External Speaker Outputs (2)

Impedance 8 Ω

Output Level 11.2 dBs (2.83 V)

Headphone Outputs (2)

Impedance 8 k Ω

Output Level 11.2 dBs (2.83 V)

Rec./P.B. Connector (1)

Impedance 10 k Ω

Output Level 0 dBs (0.775 V)

Power Output: 5 watts Max. per channel

Music power 20 watts with both channels

Speakers: 4 \times 8" (10 \times 20 cm); Cabinet speaker... (2)
4" (10 cm); Lid speaker (2)

Transistors: 24 pcs

Diodes: 8 pcs

Dimensions: 19 $\frac{1}{8}$ " (W) \times 9 $\frac{1}{8}$ " (H) \times 15 $\frac{1}{8}$ " (D)
(500 \times 252 \times 391 mm)

Weight: 41 lbs. 10 oz. (19 kg)

SONY®

SERVICE MANUAL

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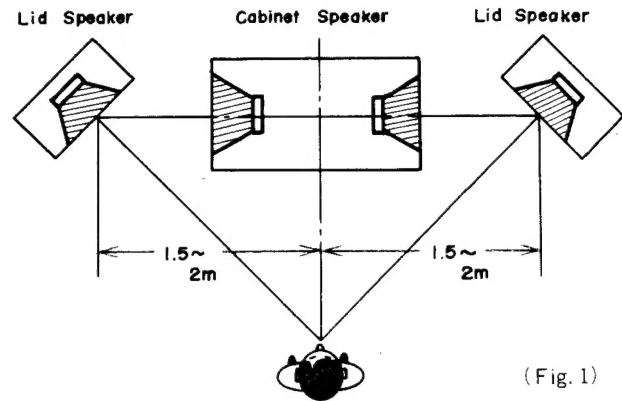
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General Description

Model TC-540 is a high-quality, solid state tape recorder designed with the up-to-date engineering techniques of SONY. Its mechanical advantages include the capability of being used in either horizontal or vertical position, 3-speed selector, retractable pinch roller, lids which can be put on even if 7-inch reels are mounted on the turntables, and scrape filter which prevents FM noise. The electrical advantages of this machine are found in 4-speaker system, through-speaker-monitoring system, bass-treble separate tone control, automatic shut-off switch and noise suppressor switch. In addition, Model TC-540 is internally provided with 2-head sound-on-sound circuit which is used for sound-on-sound recording from the left channel to the right channel, and vice versa.

Technical Features**1. SPEAKER SYSTEM**

The speaker system of the TC-540 tape recorder consists of cabinet speakers, 4"×8" (10 cm×20 cm), serving as woofers, and lid speakers, 4"×4" (10 cm×10 cm), serving as tweeters. The lid speakers are provided with 3-m cords. When the lid speakers are not used, the cabinet speakers are capable of covering the entire audio frequency band in reproduction.



(Fig. 1)

The typical speaker arrangement of TC-540 is as shown in Fig. 1. The cabinet speakers having no directivity contribute much to quality reproduction in the low frequency range. The cross-over frequency of the speakers is 300 Hz to 400 Hz. Introduced hereunder are other two methods of speaker arrangement available for the stereo tape recorder. Reference can be made to these methods to understand how advanced the present TC-540 speaker arrangement is.

METHOD 1 Two lids, each provided with one speaker, are used. The cabinet speakers are not used. In this method, a lid for a woofer must have a larger speaker box. The present lid, however, is limited in speaker box size and, hence, poor-quality reproduction will result in the low frequency range.

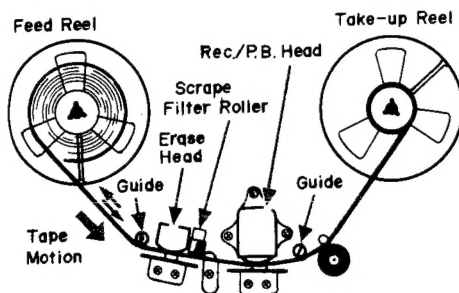
METHOD 2 Two speakers are used, one being installed to the lid and the other to the cabinet. The lid and cabinet, however, differ from each other in speaker box size, resulting in difference in tone quality.

In the TC-540 speaker arrangement, every possible deficiency is corrected. The advantage that small-size lid speakers may be used offers compact and lightweight design of the machine.

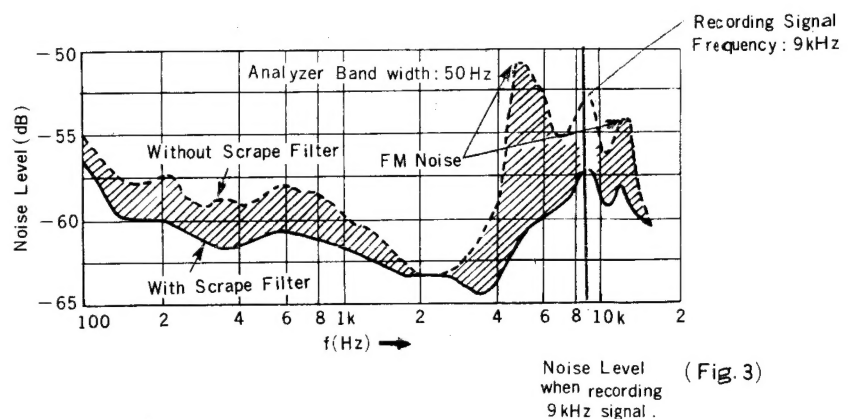
2. SCRAPE FILTER

Generally, the tape vibrates longitudinally with its natural frequency when it is transported. Vibration frequency (cps) bears a close relation to the modulus of longitudinal elasticity, specific gravity and span of the tape. Such a vibration is negligible when no signal is recorded. However, if any high-frequency signal is recorded, it is modulated to bring about sidebands similar to tape noise on both sides of the signal frequency. These sidebands are heard as FM noise (something like hiss noise) having a certain level when listening to them carefully. They can be discriminated from tape noise because they are changed in volume when the record signal frequency is shifted.

It has often been reported that an input signal whose frequency is higher than 5 kHz cannot be reproduced with clear sound when it is recorded. This complaint seems to have directed against FM noise due to these sidebands. The scrape filter (roller) is located between the erase head and the record/playback head as shown in Fig. 2. In operation, it decreases the span of the tape and increases vibration frequency 3 or 4 times. When this frequency is increased beyond the audible range, the node of vibration of the tape is brought close to the record/playback head to prevent vibration of the tape. Under such a condition, the sidebands are eliminated and, in turn, FM noise is reduced over nearly entire frequency range as shown in Fig. 3.



(Fig. 2)



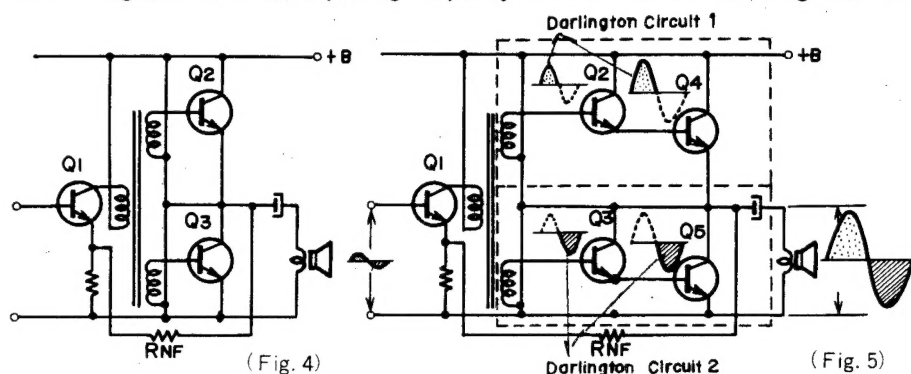
(Fig. 3)

3. POWER AMPLIFIER

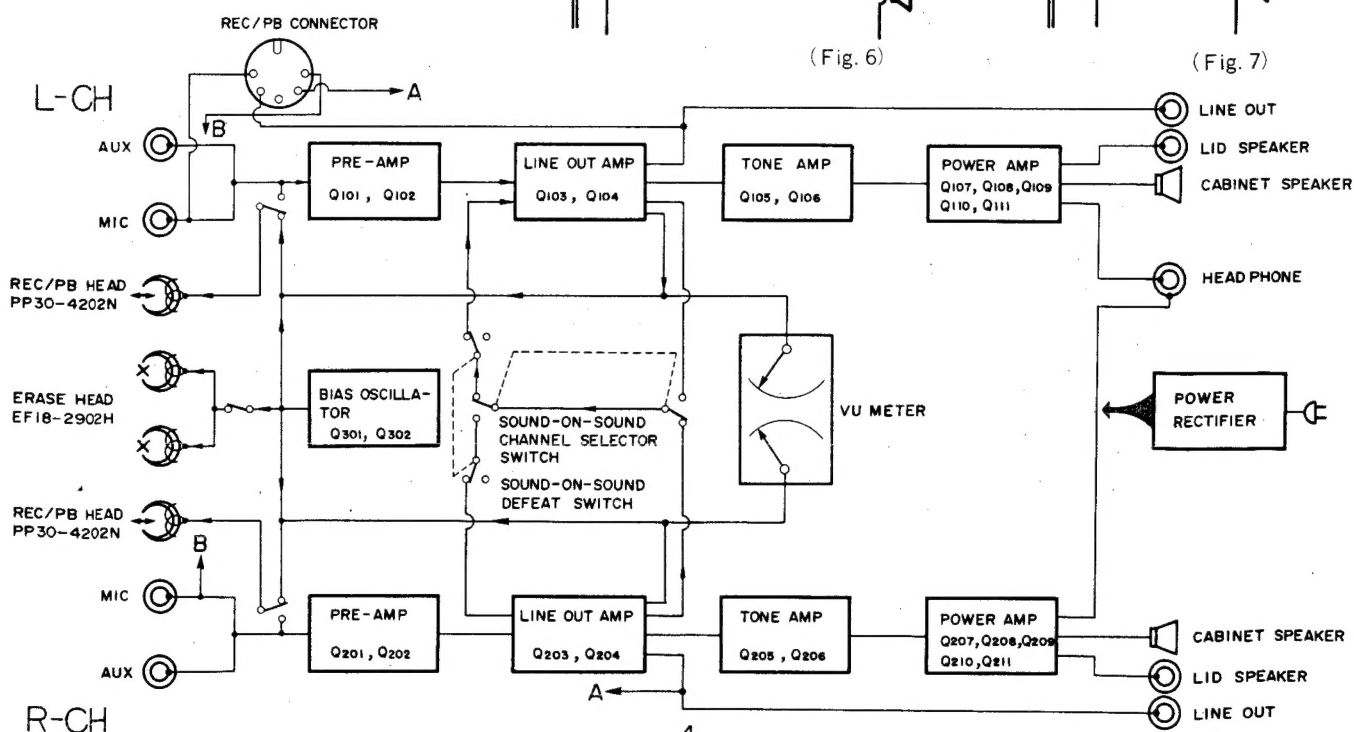
The power amplifier of Model TC-540 is designed by modifying the ordinary SEPP OTL circuit (shown in Fig. 4 & 5) and successfully adding Darlington circuits (shown in Fig. 5) thereto. The function of Darlington circuit is as follows:

The details of Darlington circuit are shown in Fig. 6. In this circuit, two NPN type transistors (Q_2 and Q_4) are connected in series with each other. The collector current (emitter current) of Q_2 becomes the base current of Q_4 . The base current (I_{B1}) of Q_2 is amplified at h_{fe1} (the forward-current transfer ratio of Q_2), and flows to Q_4 , where it becomes the base current (I_{B2}). This current is again amplified at h_{fe2} (the forward-current transfer ratio of Q_4). The overall forward-current transfer ratio (h_{fe}) is written as $h_{fe} = h_{fe1} \times h_{fe2}$

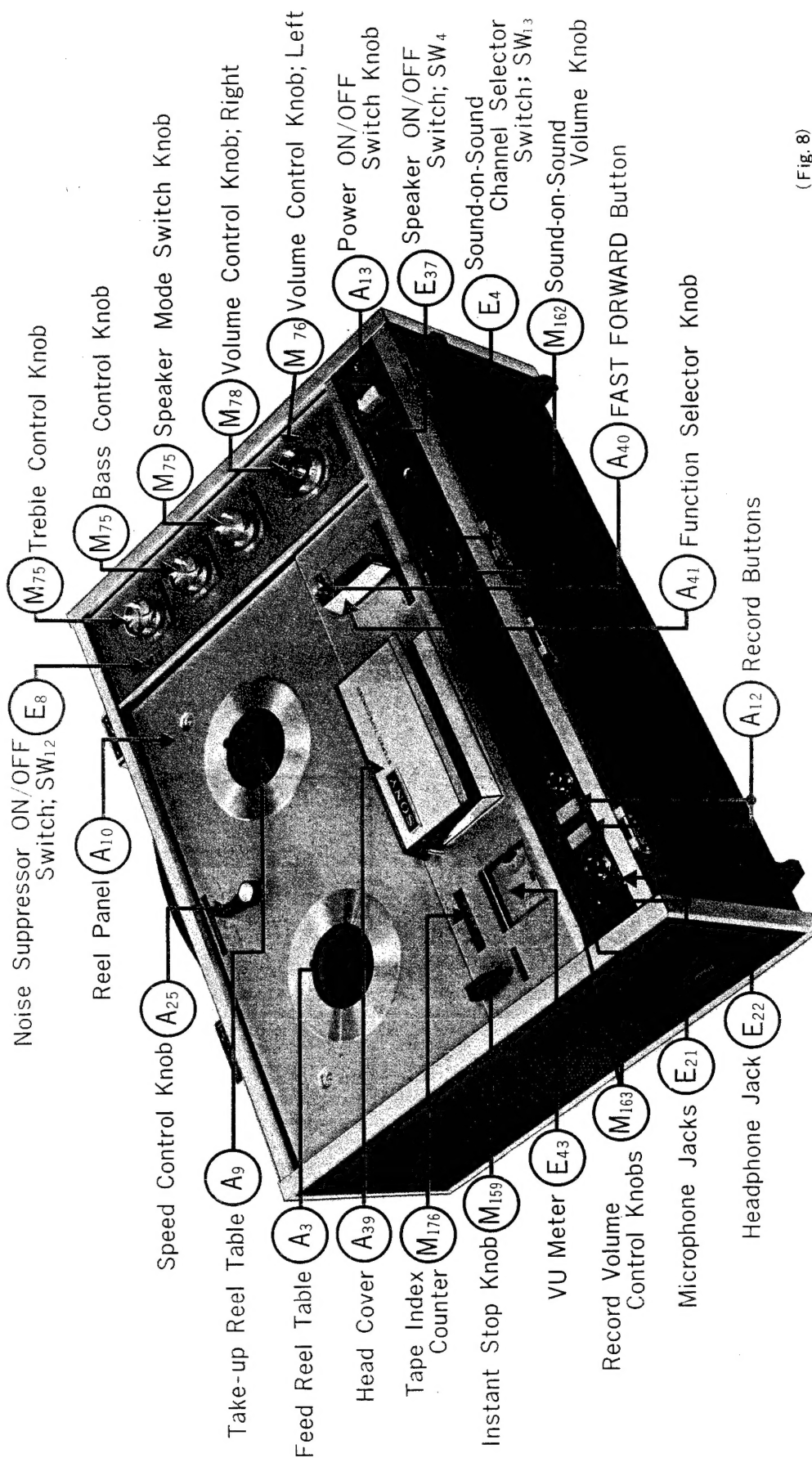
Hence, Darlington circuit is in one sense a transistor in which Q_2 and Q_4 are combined to increase h_{fe} to a great extent (Fig. 7). Darlington circuit shown in Fig. 5 provides the same function. Darlington circuit (1) amplifies the positive half and Darlington circuit (2) the negative half of the cycle, thereby supplying a greatly amplified output to the load (speaker). It can rightly be said, therefore, that the power amplifier provided with such Darlington circuits is capable of employing a more compact driver transformer without getting faulty on the performance characteristics. Such a high gain amplifier makes it possible to apply a large amount of negative feedback, improving frequency characteristic and reducing distortion.



Block Diagram

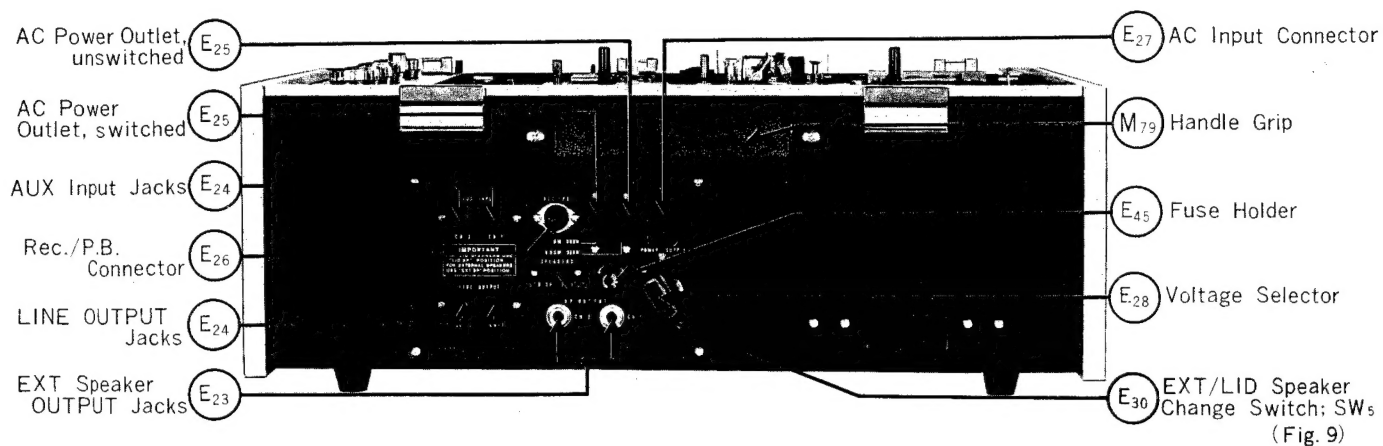


Cabinet Top View

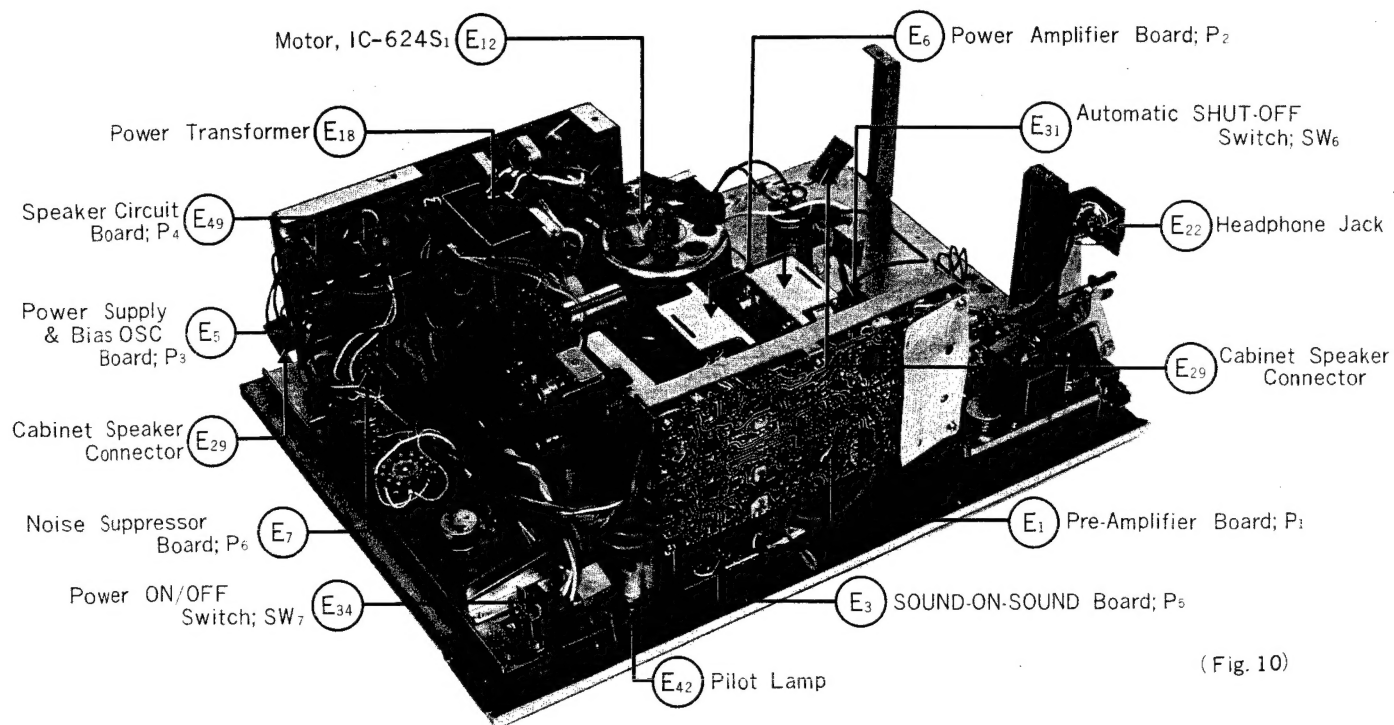


(Fig. 8)

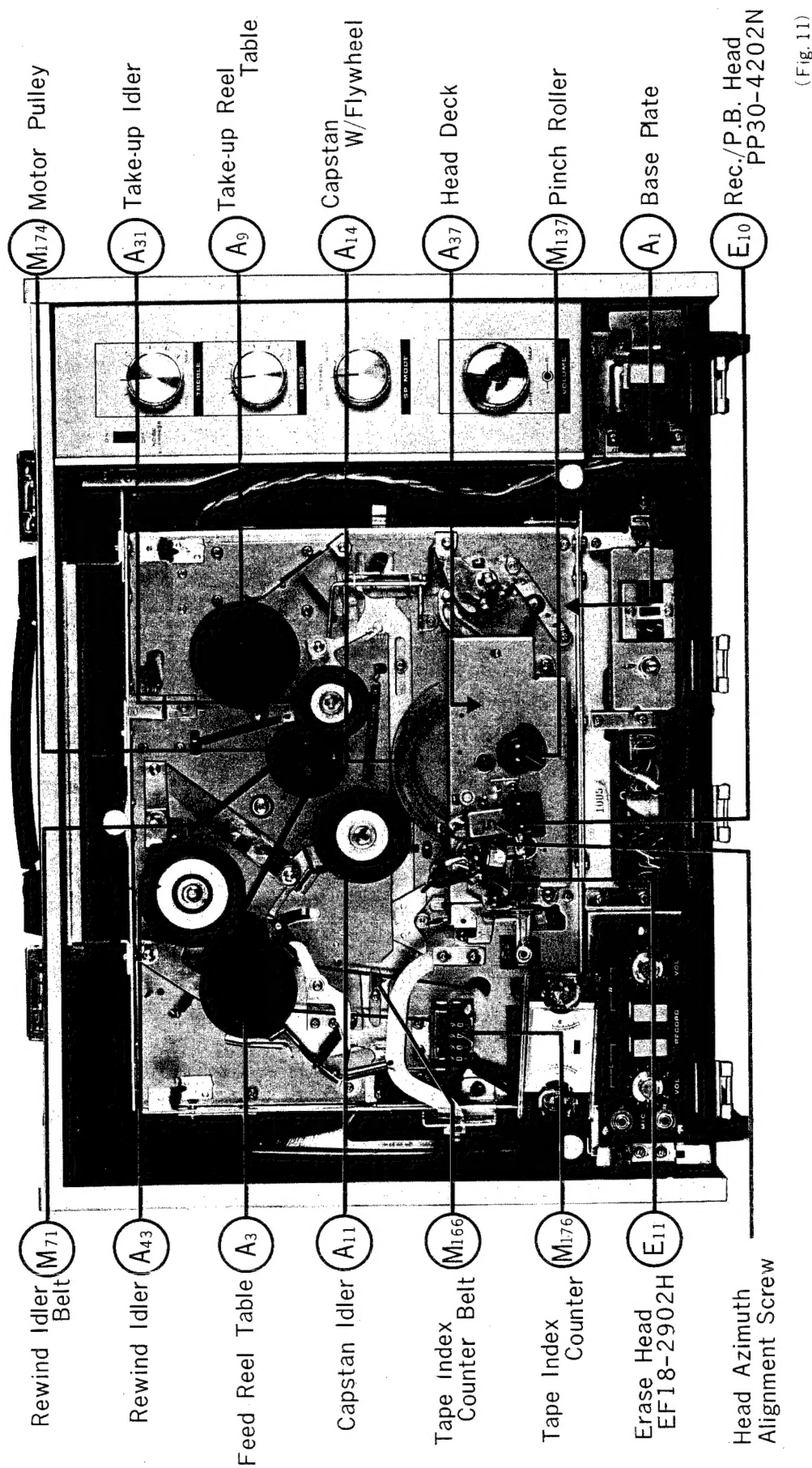
Cabinet Back View



Chassis Bottom View



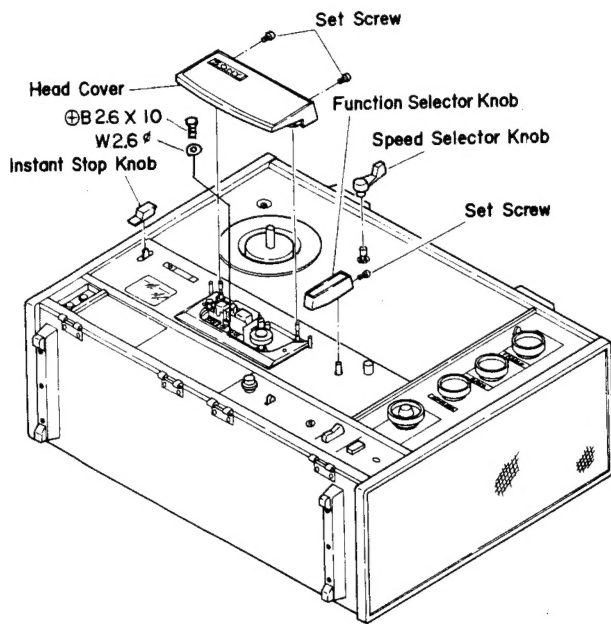
Chassis Top View



(Fig. 11)

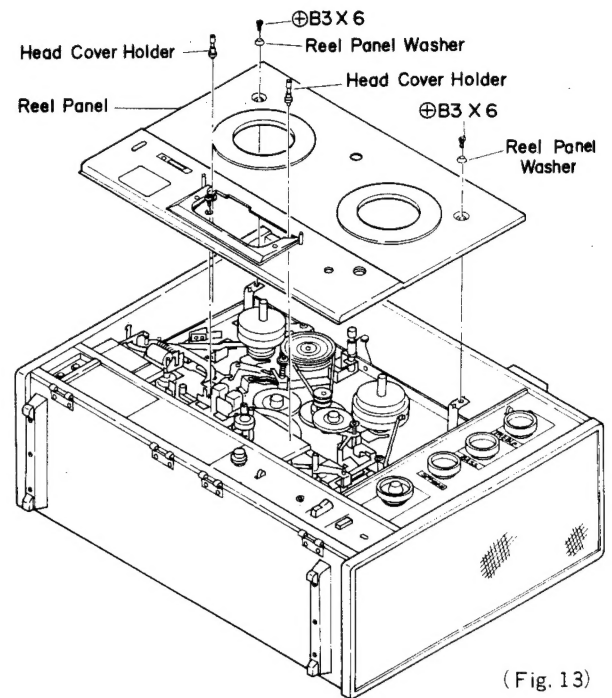
Method of Disassembling the Set

Removal of Knobs and Head Cover



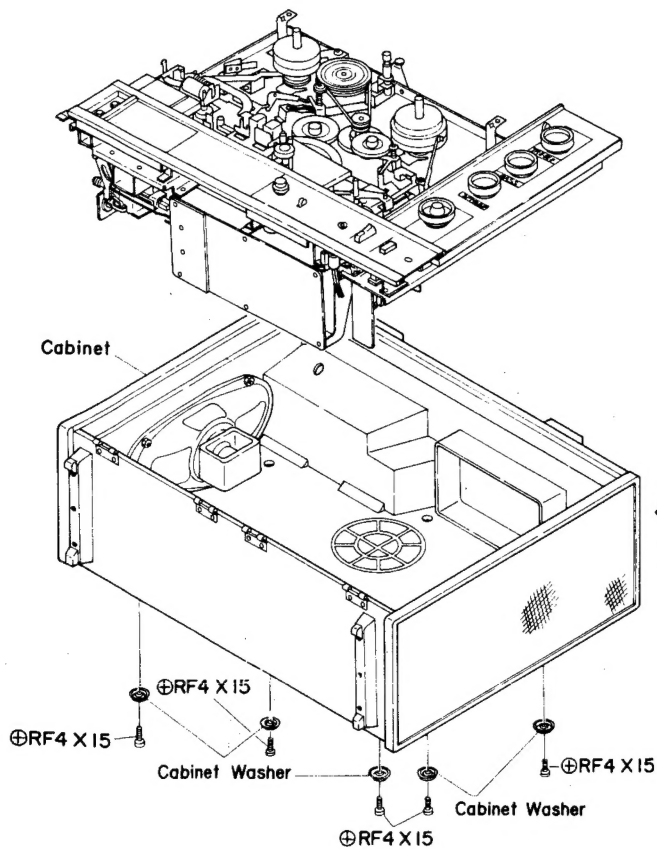
(Fig. 12)

Removal of Reel Panel



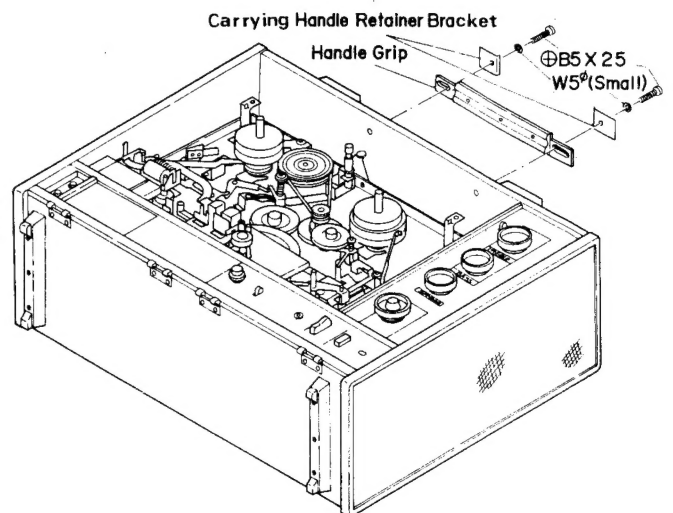
(Fig. 13)

Removal of Cabinet



(Fig. 15)

Removal of Carrying Handle

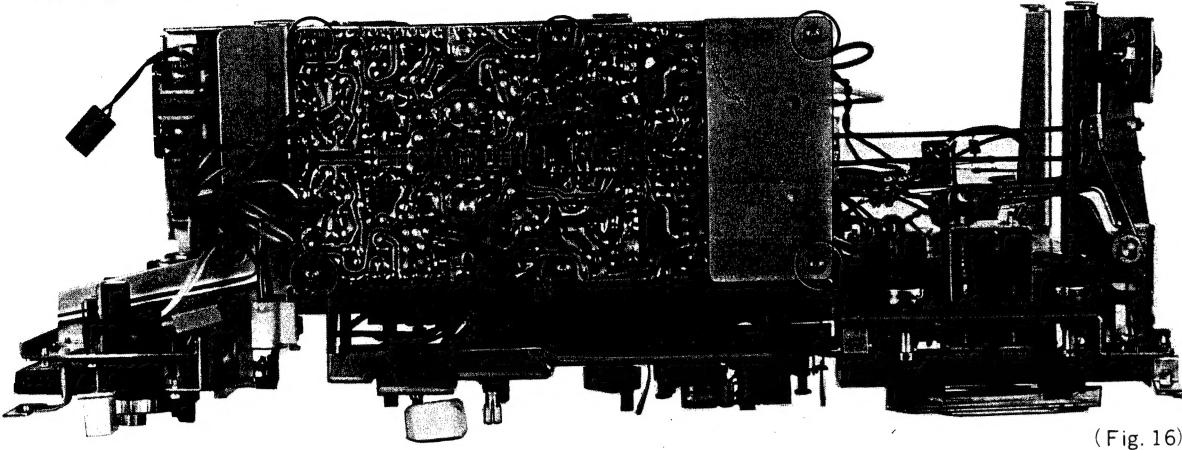


(Fig. 14)

Removal of Mounted Circuit Boards

1. Pre-Amplifier Section

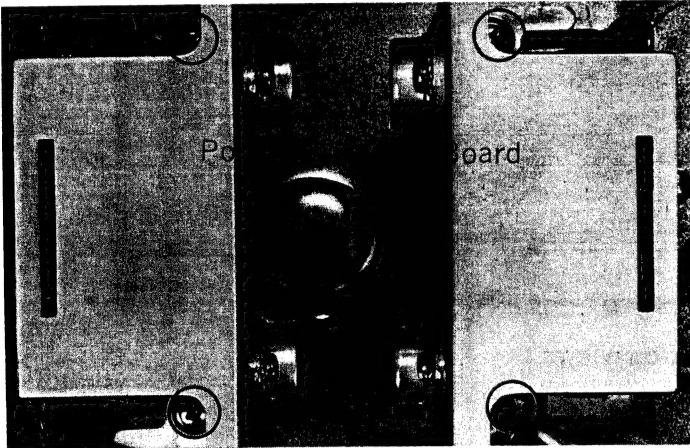
Pre-Amplifier Board can be removed by unscrewing the Screws encircled. (Fig. 16)



(Fig. 16)

2. Power Amplifier Section

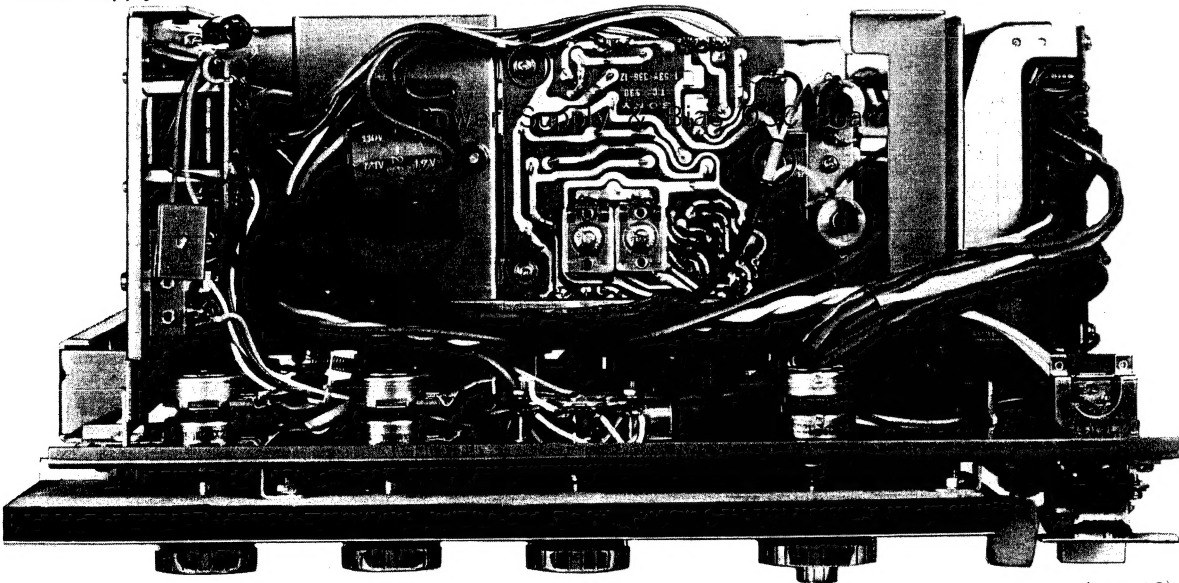
Power Amplifier Board can be removed by unscrewing the Screws encircled. (Fig. 17)



(Fig. 17)

3. Power Supply & Bias OSC Section

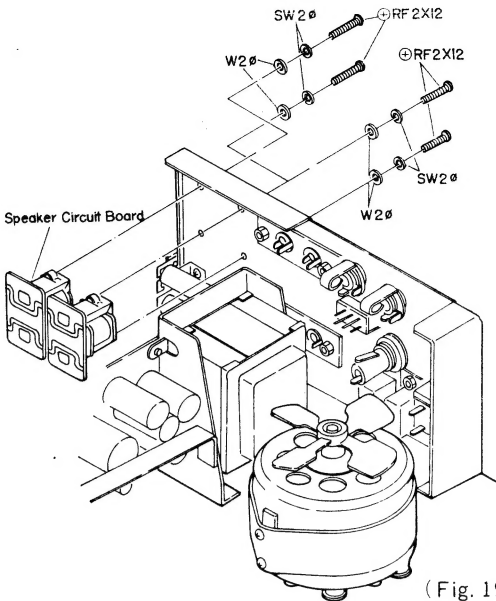
Power Supply & Bias OSC Board can be removed by unscrewing the Screws encircled. (Fig. 18)



(Fig. 18)

4. Speaker Circuit Section

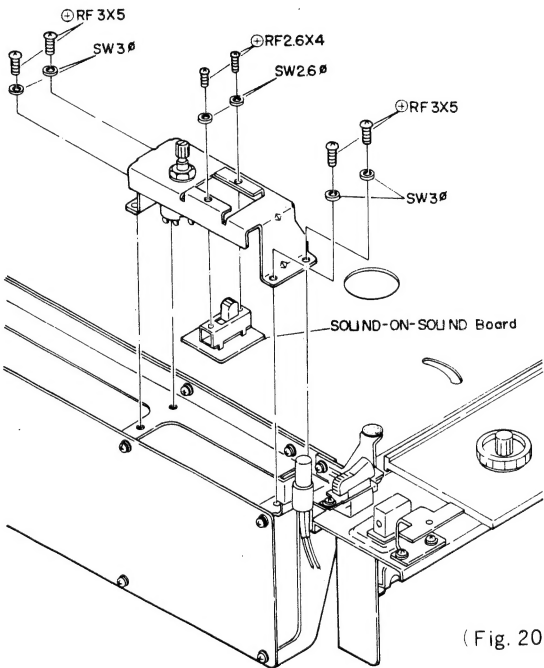
Speaker Switch Board can be removed by unscrewing the Screws. (Fig. 19)



(Fig. 19)

5. SOUND-ON-SOUND Section

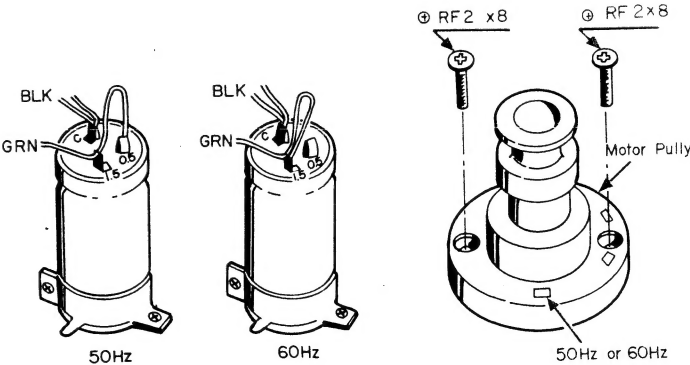
SOUND-ON-SOUND Board can be removed by unscrewing the Screws. (Fig. 20)



(Fig. 20)

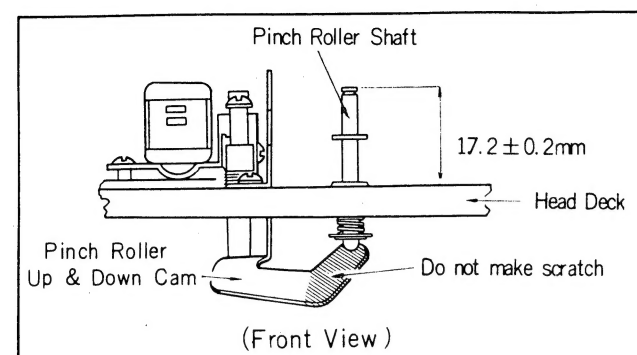
Modification to Different Household Frequency

	For 50 Hz	For 60 Hz
1. Connection between terminals of the Metalized Paper Capacitor	Connected (1.5 μ F ~ 0.5 μ F)	Disconnected (1.5 μ F)
2. Motor Pulley Part Number	3-444-064	3-444-063

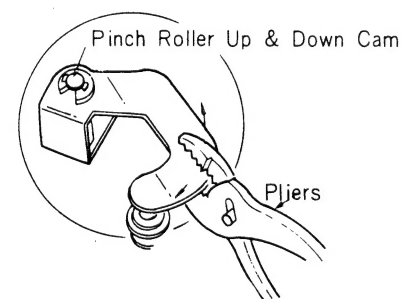


Mechanical Adjustment

A Pinch Roller Shaft Height Adjustment

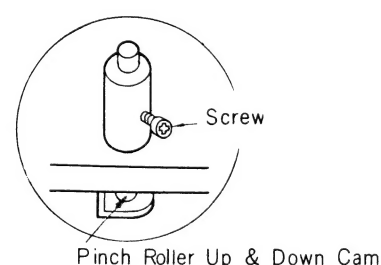


① When adjusting roughly
Adjust by bending with pliers as shown below.

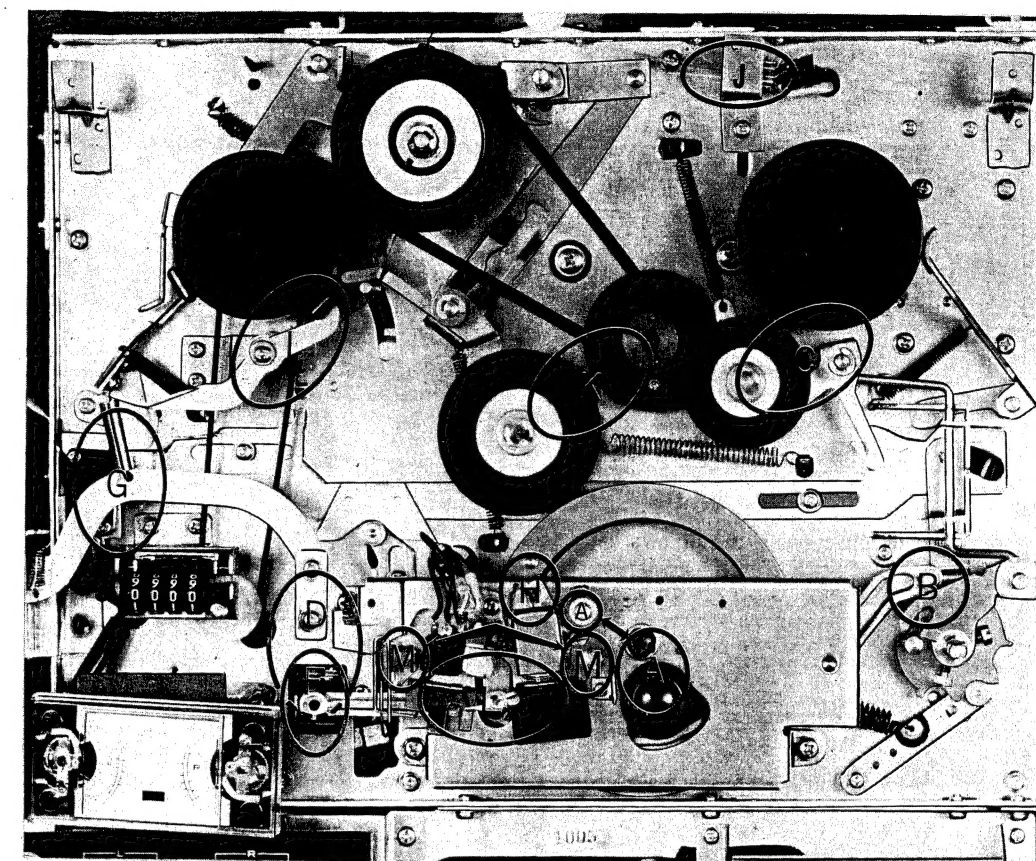


(Bottom View)

② When adjusting accurately
Adjust to obtain $17.2 \pm 0.2\text{mm}$ by loosening screw and moving shaft up and down.
After fastening screw, apply Lock Paint.

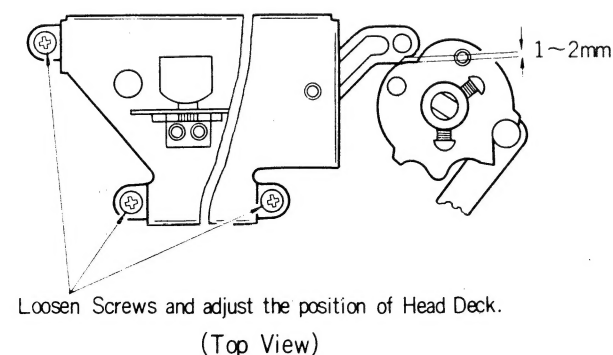


(Top View)



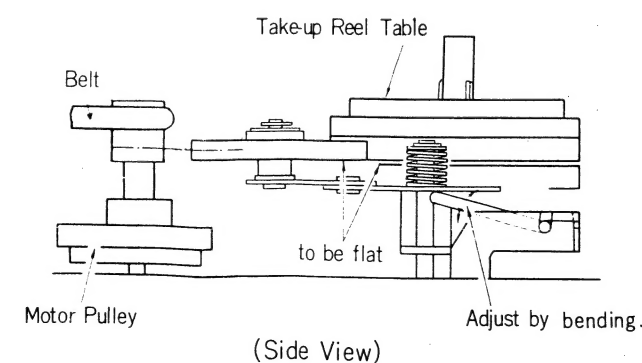
Top View

B Head Deck Position Adjustment in FORWARD mode



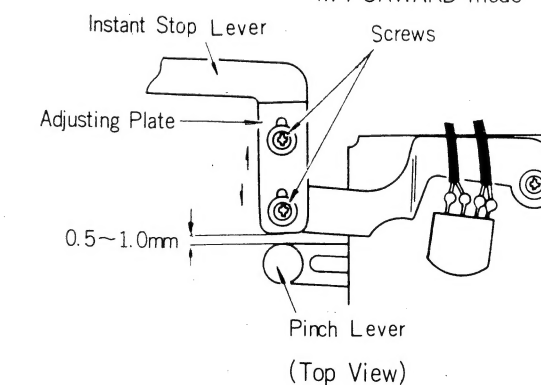
Loosen Screws and adjust the position of Head Deck.
(Top View)

C Take-up Idler Height Adjustment in FAST FORWARD mode

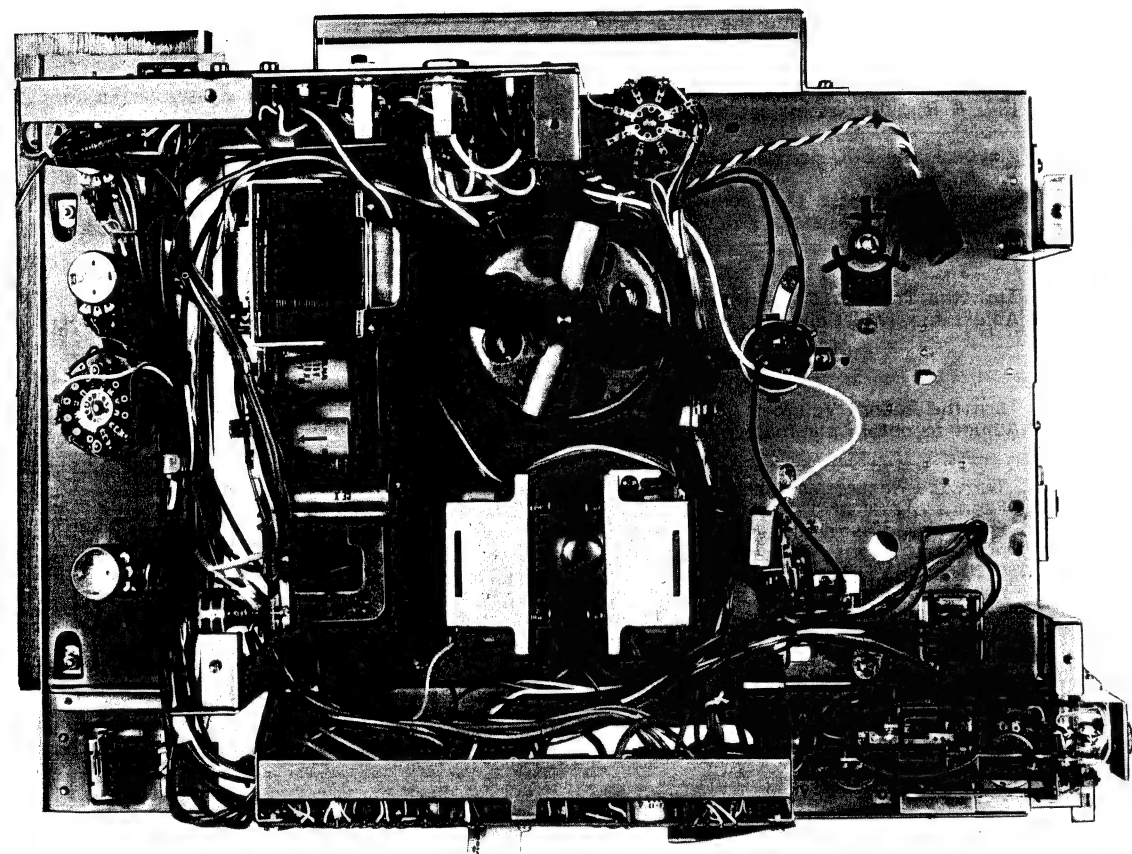


(Side View)

D Instant Stop Lever Adjustment in FORWARD mode

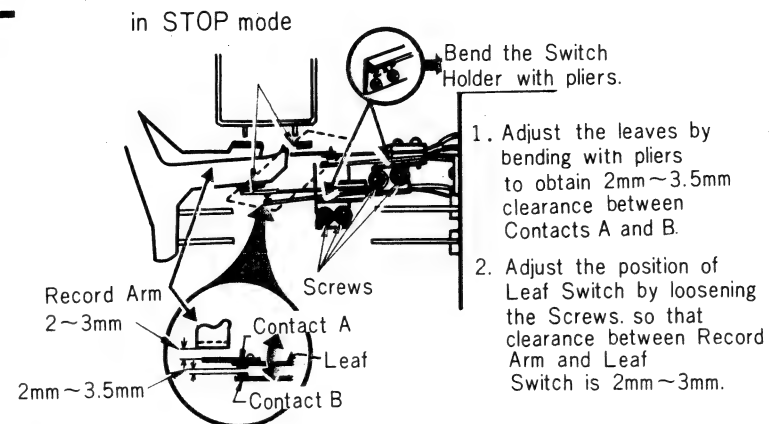


Loosen Screws and adjust the position of Adjusting Plate.

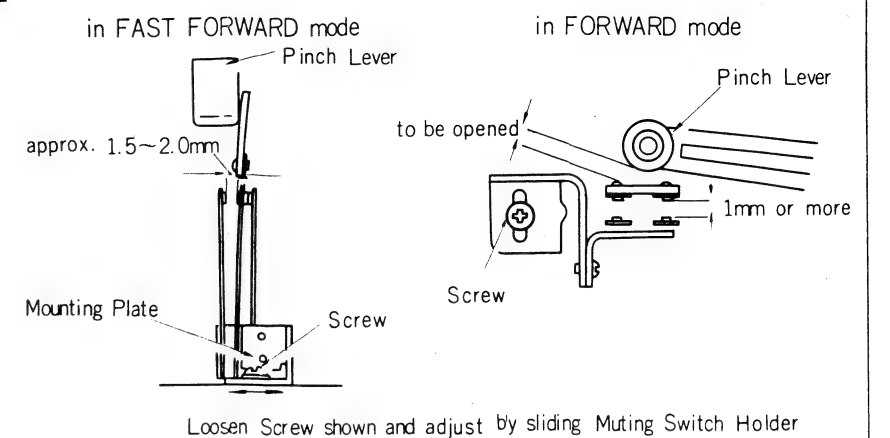


Bottom View

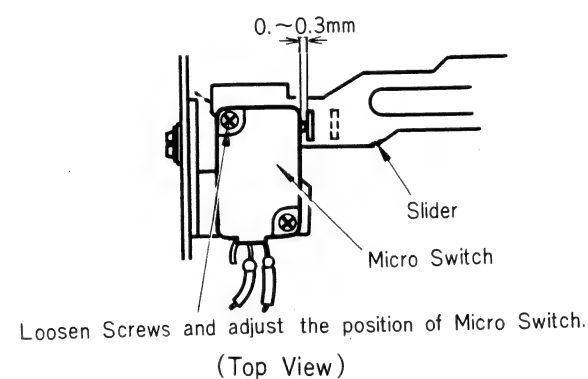
E Monaural Record Switch Adjustment.



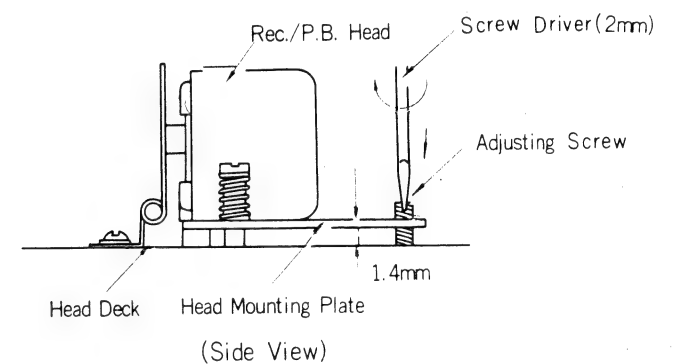
F Muting Switch Adjustment



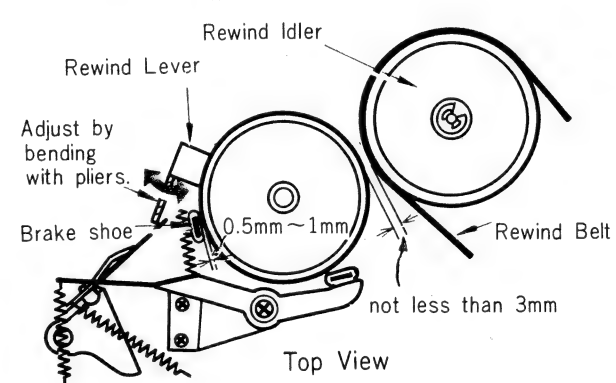
G Bias ON/OFF Switch Position Adjustment



H Head Mounting Plate Height Adjustment

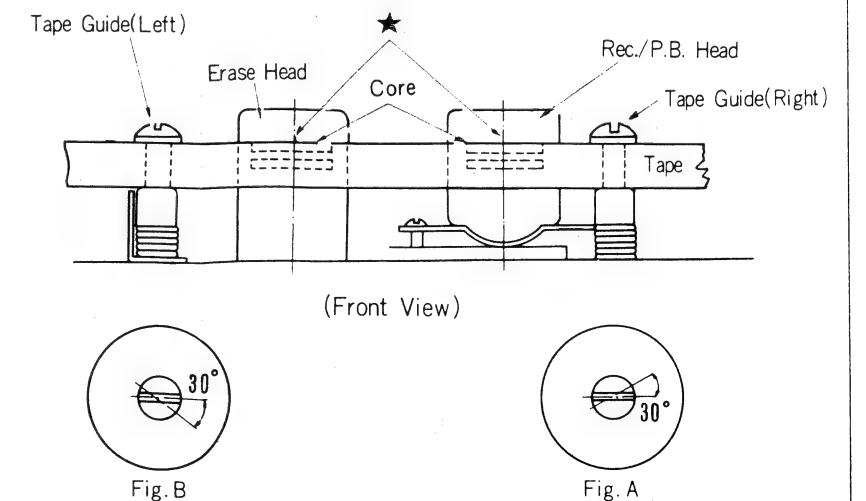


I Feed Reel Tadle Brake Position Adjustment

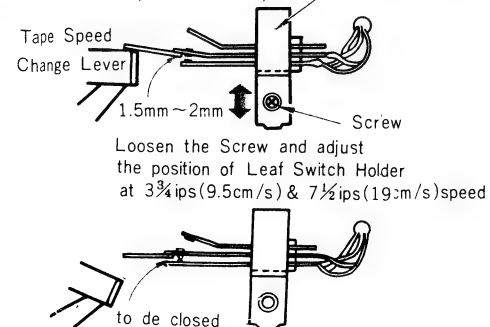


M Tape Guide Ajustment

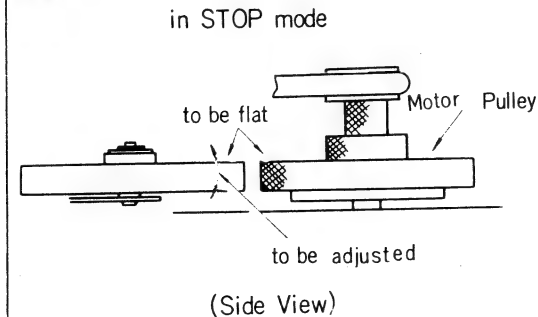
1. Keep Head Shield Plate laying down forward by finger tip.
2. Adjust Tape Guide so that Cores are just visible above the top edge of Tape. (★)
3. Turn Tape Guide(Right) counterclockwise by approx. 30 degrees as shown in Fig. A and the Tape Guide(Left) clockwise by approx. 30 degrees as shown in Fig. B.



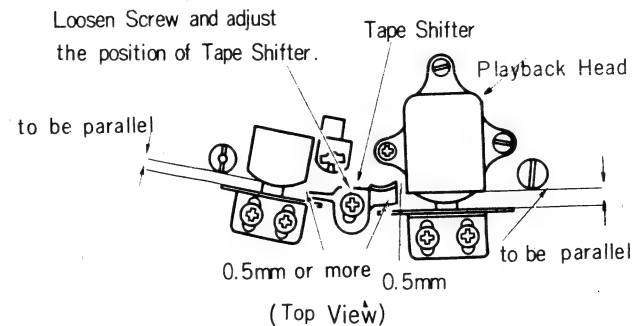
J Bias Control Switch Position Adjustment



K Capstan Idler Position Adjustment



L Tape Shifter Adjustment

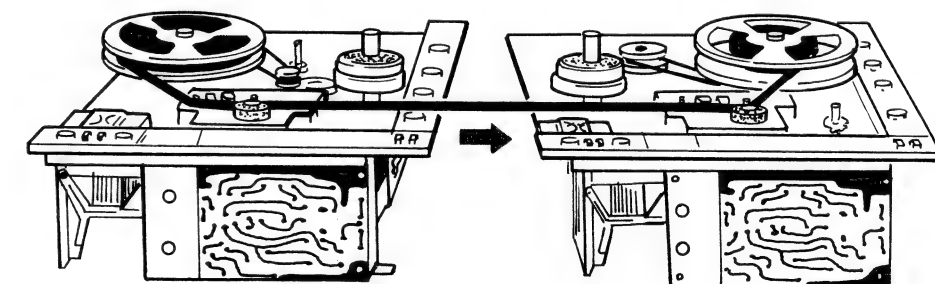


Electrical Adjustment

Item	Signal Source	Output Connection	Mode	Adjust	Remarks
1. Playback Azimuth Alignment	10 kHz 1st section of SONY Alignment Tape, J-19-F ₂	VTVM and 100kΩ Resistor in parallel to LINE OUT	Playback	Azimuth Alignment Screw See Fig. 22	Adjust to obtain maximum reading on VTVM.
2. Playback Level Adjustment	1 kHz 2nd section of SONY Alignment Tape, J-19-F ₂	VTVM and 100kΩ Resistor in parallel to LINE OUT	Playback	L-CH; R ₁₁₉ L-CH; R ₂₁₉ See Fig. 24	Adjust Adjustable Resistors (R ₁₁₉ & R ₂₁₉) to obtain 0 dBs (0.775V) on VTVM.
3. Meter Level Adjustment	1 kHz, -60 dBs (0.78 mV) to MIC INPUT	VTVM and 100kΩ Resistor in parallel to LINE OUT	Record	L-CH; R ₁₄₀ 5kΩ (B) R-CH; R ₂₄₀ 5kΩ (B) See Fig. 24	1. Adjust the Record Volumes (R ₁₅₇ & R ₂₅₇) to obtain +1 dBs (0.89 V) on VTVM. 2. Adjust the Adjustable Resistors (R ₁₄₀ & R ₂₄₀) so that Level Meters indicate the boundary between the red zone and the white zone.
4. Playback Equalizer Adjustment (1); 7½ ips (19 cm/s)	SONY Alignment Tape, J-19-F ₂	VTVM and 100kΩ Resistor in parallel to LINE OUT	Playback	L-CH; R ₁₁₆ 5kΩ (B) R-CH; R ₂₁₆ 5kΩ (B) See Fig. 24	1. Playback 1kHz, 3rd section of Alignment Tape and measure its the response with VTVM. 2. Playback the 12.5kHz, (4th section) of Alignment Tape and adjust the adjustable resistors (R ₁₁₆ & R ₂₁₆) to obtain just the same response comparing with Step 1.
5. Playback Equalizer Adjustment (2); 3¾ ips (9.5 cm/s)	SONY Alignment Tape, J-9-F ₁	VTVM and 100kΩ Resistor in parallel to LINE OUT	Playback	L-CH; R ₁₁₆ 5kΩ (B) R-CH; R ₂₁₆ 5kΩ (B) See Fig. 24	1. Playback the 500 Hz, (3rd section) of Alignment Tape and measure its the response with VTVM. 2. Playback the 5kHz, (4th section) and the 200 Hz, (6th section) of Alinment Tape and adjust the adjustable resistors (R ₁₁₆ & R ₂₁₆) to obtain just the same response comparing with Step 1.
6. Trap Coil Adjustment (1)		VTVM across REC/PB Head	Record	L-CH; L ₁₀₃ 20 mH C ₃₀₃ 30~200 P R-CH; L ₂₀₃ 20 mH C ₃₀₄ 30~200 P See Fig. 23	1. Turn the Trimmer Capacitors (C ₃₀₃ & C ₃₀₄) clockwise fully. 2. Adjust the Trap Coils (L ₁₀₃ & L ₂₀₃) to obtain minimum reading of Bias Voltage Value on VTVM.
7. Trap Coil Adjustment (2)		VTVM and 100kΩ Resistor in parallel to LINE OUT	Record	L-CH; L ₁₀₁ 200μH R-CH; L ₂₀₁ 200μH See Fig. 24	1. Turn the Record Volumes (R ₁₅₇ & R ₂₅₇) clockwise fully. 2. Adjust to obtain minimum reading on VTVM.
8. Recording Bias Adjustment	1 kHz, -72 dBs (0.196 mV) to MIC INPUT	VTVM and 100kΩ Resistor in parallel to LINE OUT	Playback & Record	L-CH; C ₃₀₃ 30~200 P R-CH; C ₃₀₄ 30~200 P See Fig. 23	1. Turn the Record Volumes (R ₁₅₇ & R ₂₅₇) clockwise fully. 2. Feed a Signal of 1kHz, -72 dBs (0.196 mV) to MIC Input. 3. For Bias Adjustment, it is recommendable to use another tape recorder besides TC-540. 4. Make the height of their reel panels even and thread a blank tape. (See Fig. 21) 5. Connect a VTVM and 100kΩ resistor in parallel to LINE OUT of the other tape recorder. 6. Set TC-540 in RECORD mode and the other in PLAYBACK mode. 7. Set both machines to 7½ ips (19 cm/s) or 3¾ ips (9.5 cm/s). 8. Turn the trimmer capacitors fully counter-clockwise. 9. Turn the trimmer capacitors clockwise slowly. 10. The VTVM reading will go up, reaching maximum and then falling again. Continue to turn the trimmer capacitor until the VTVM reads 0.5 dB below from the maximum value.

NOTES:

- (1) The Adjustments should be made in numerical order.
- (2) The Adjustments should be performed in the tape speed of 19 cm/sec. (7½ ips), unless otherwise specified.
- (3) After adjustments, apply Lock Paint to the adjusted parts.
- (4) The following test equipment is to be provided for these adjustments.
 - Audio Generator
 - Attenuator (600 ohms)
 - V. T. V. M.
 - 100K ohm Resistor
 - SONY Alignment Tapes: J-19-F₂ & J-9-F₁
 - Blank Tape
- (5) Bias Voltage across Heads measured with V.T.V.M. shall be:
 - Rec./P.B. Head: Approx. 40 volts
 - Erase Head: Approx. 80 volts

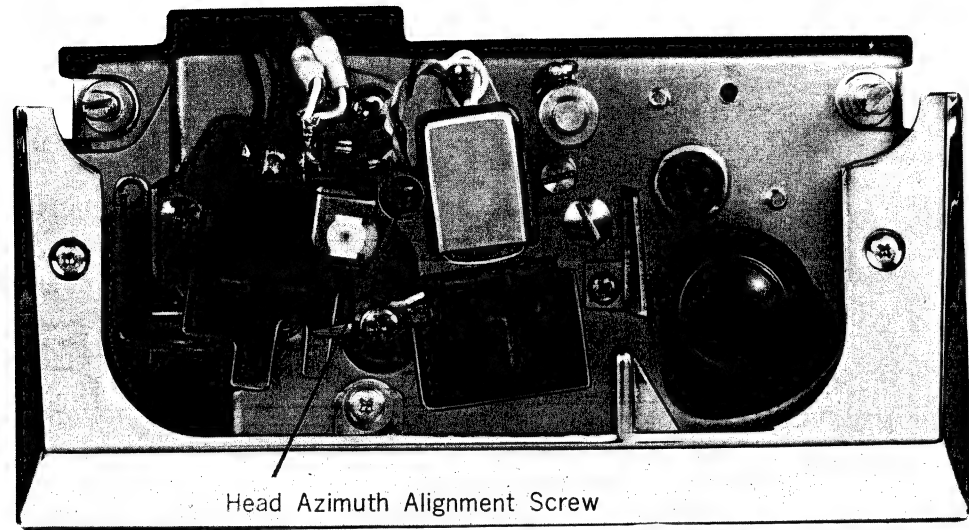


(Fig. 21)

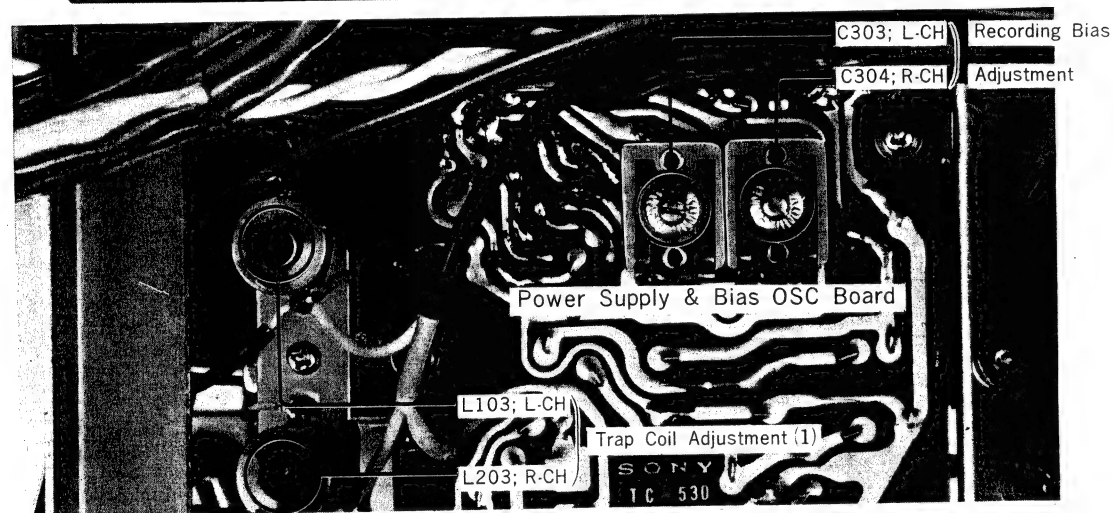
TC-540

Other Tape Recorder

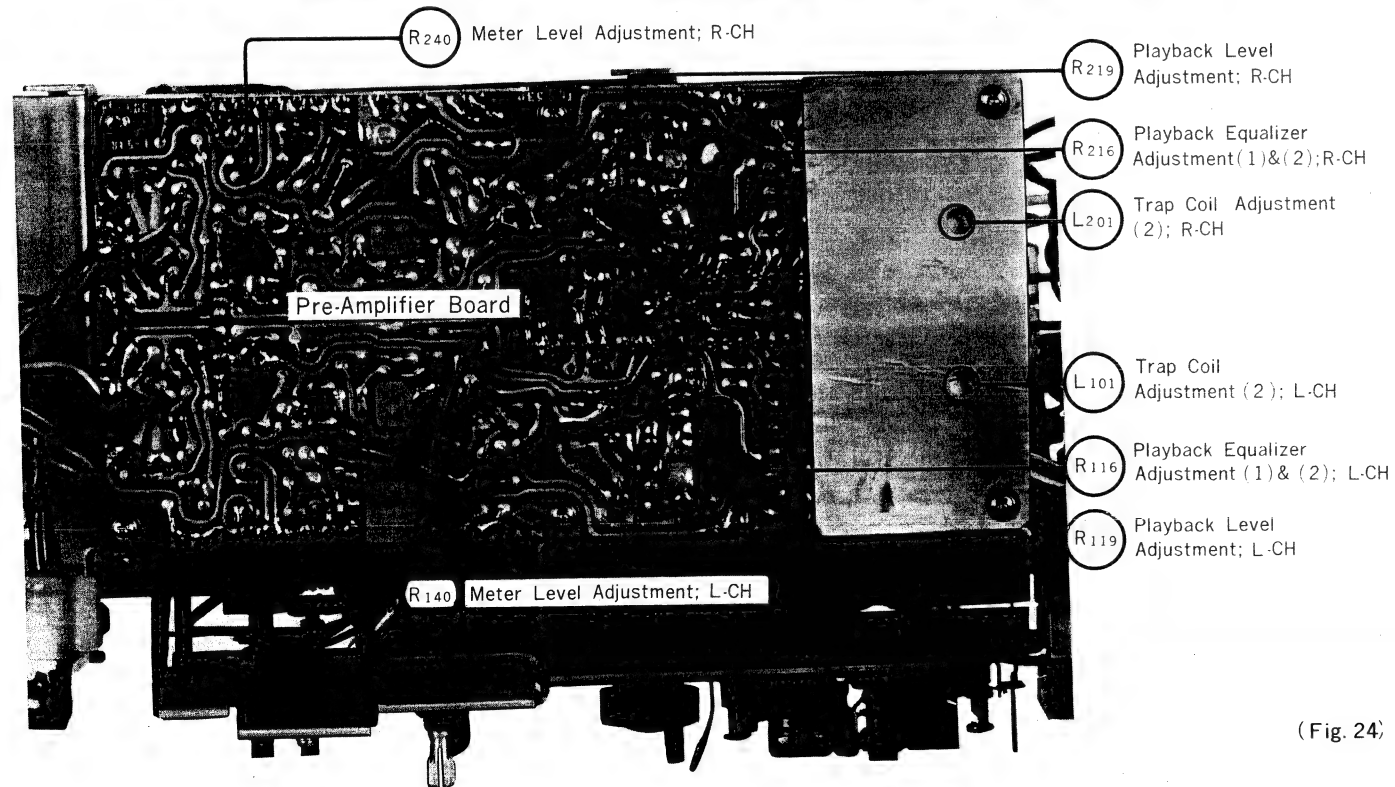
TC-540 TC-540



(Fig. 22)



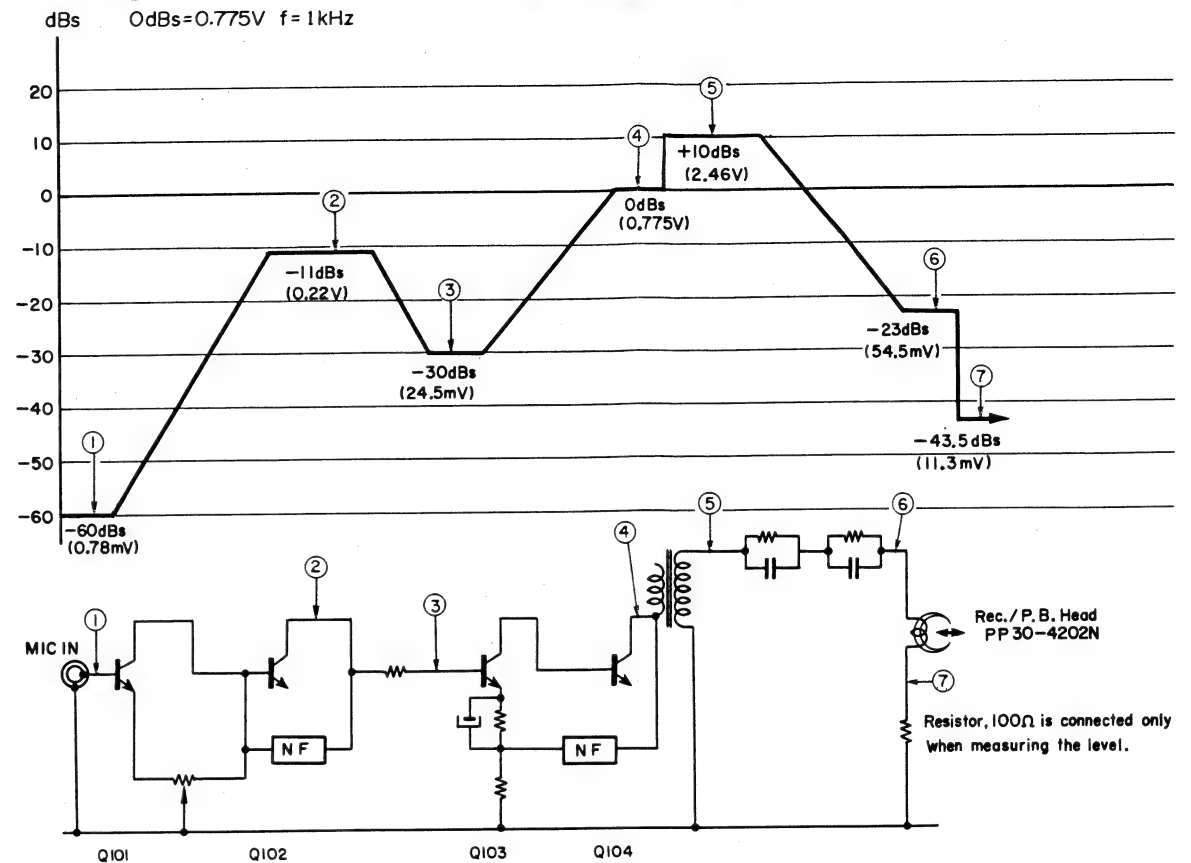
(Fig. 23)



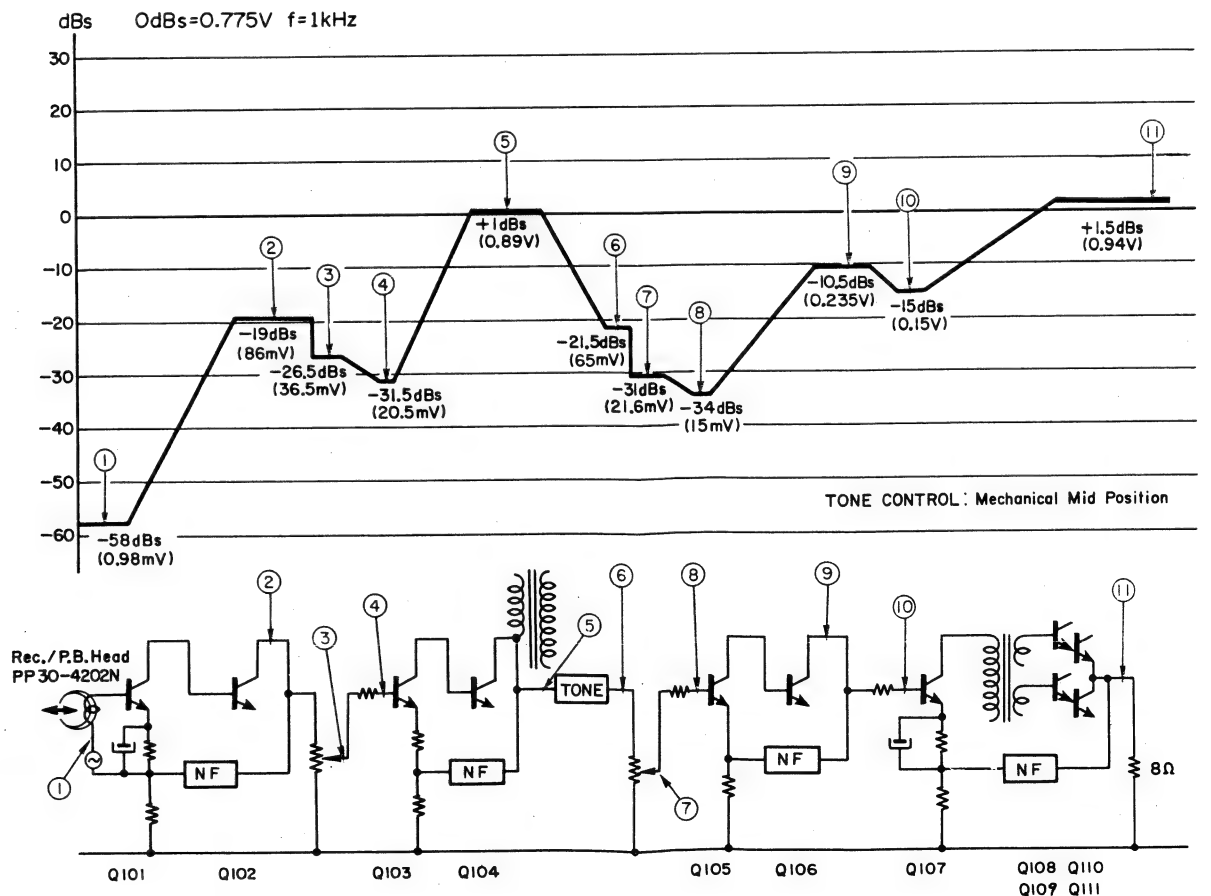
(Fig. 24)

Level Diagram

Recording

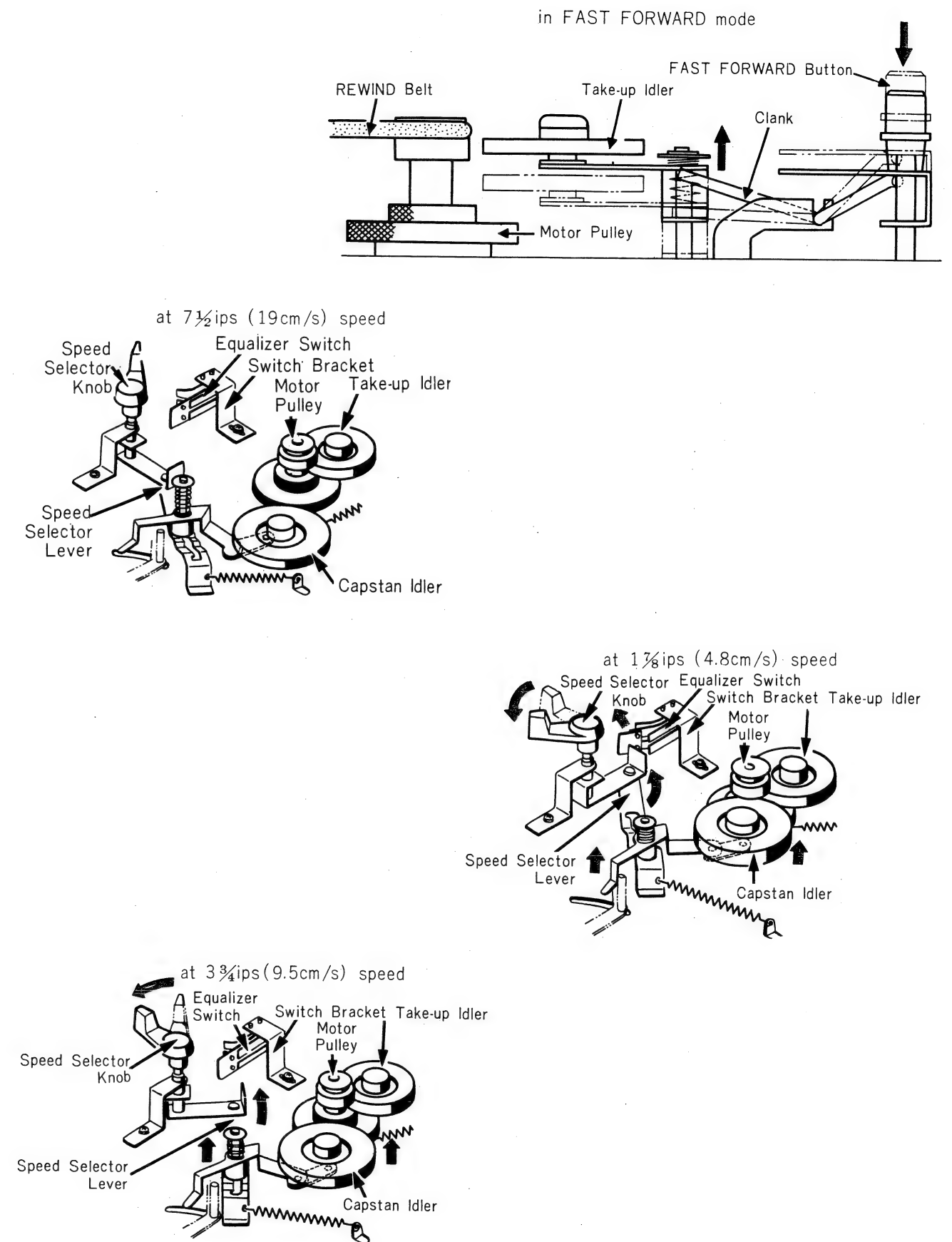
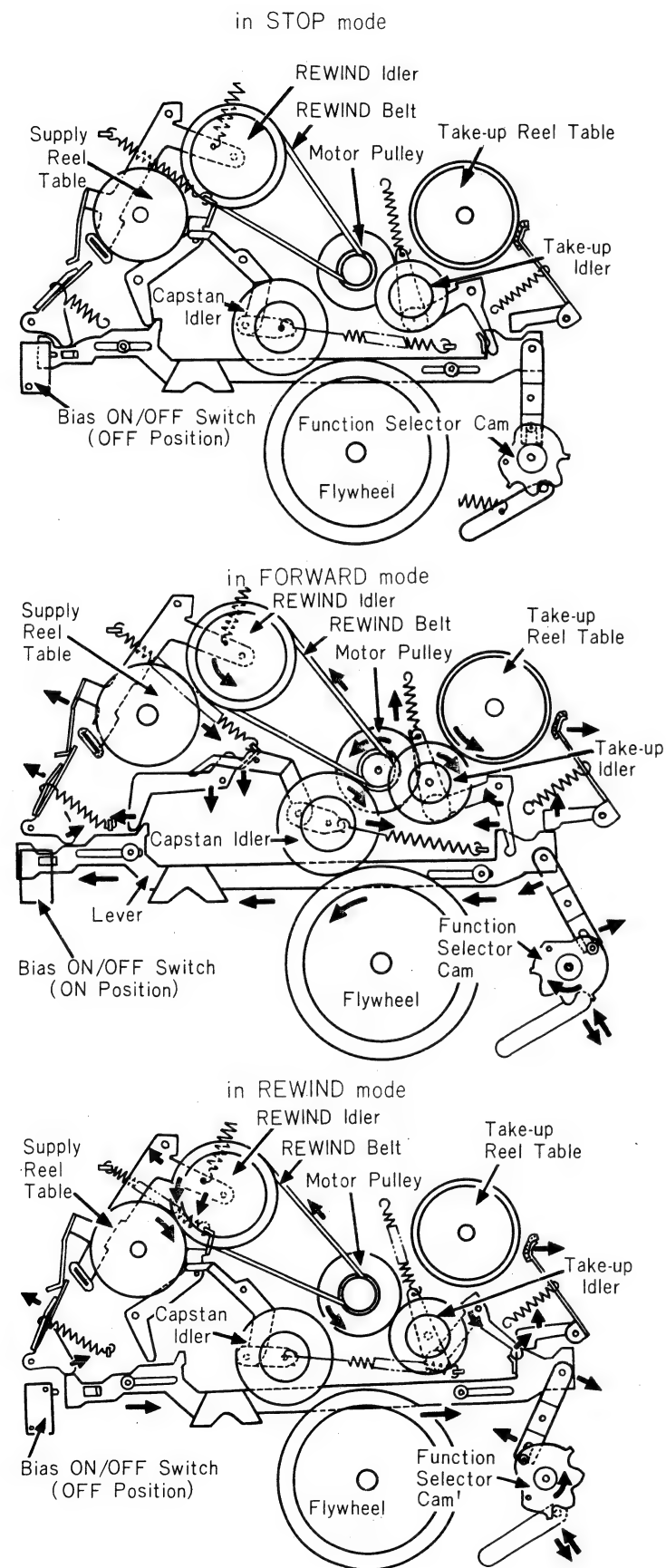


Playback

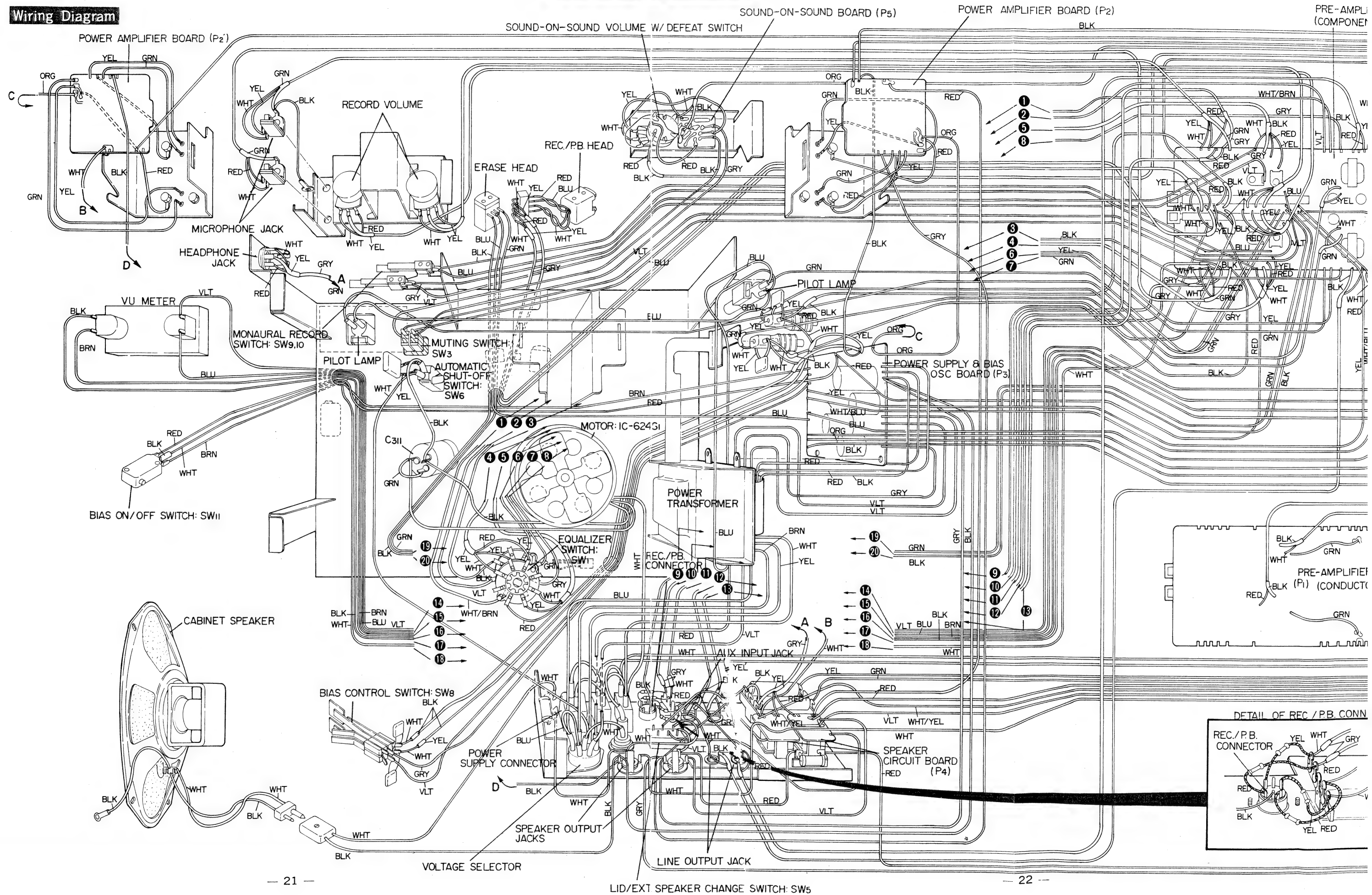


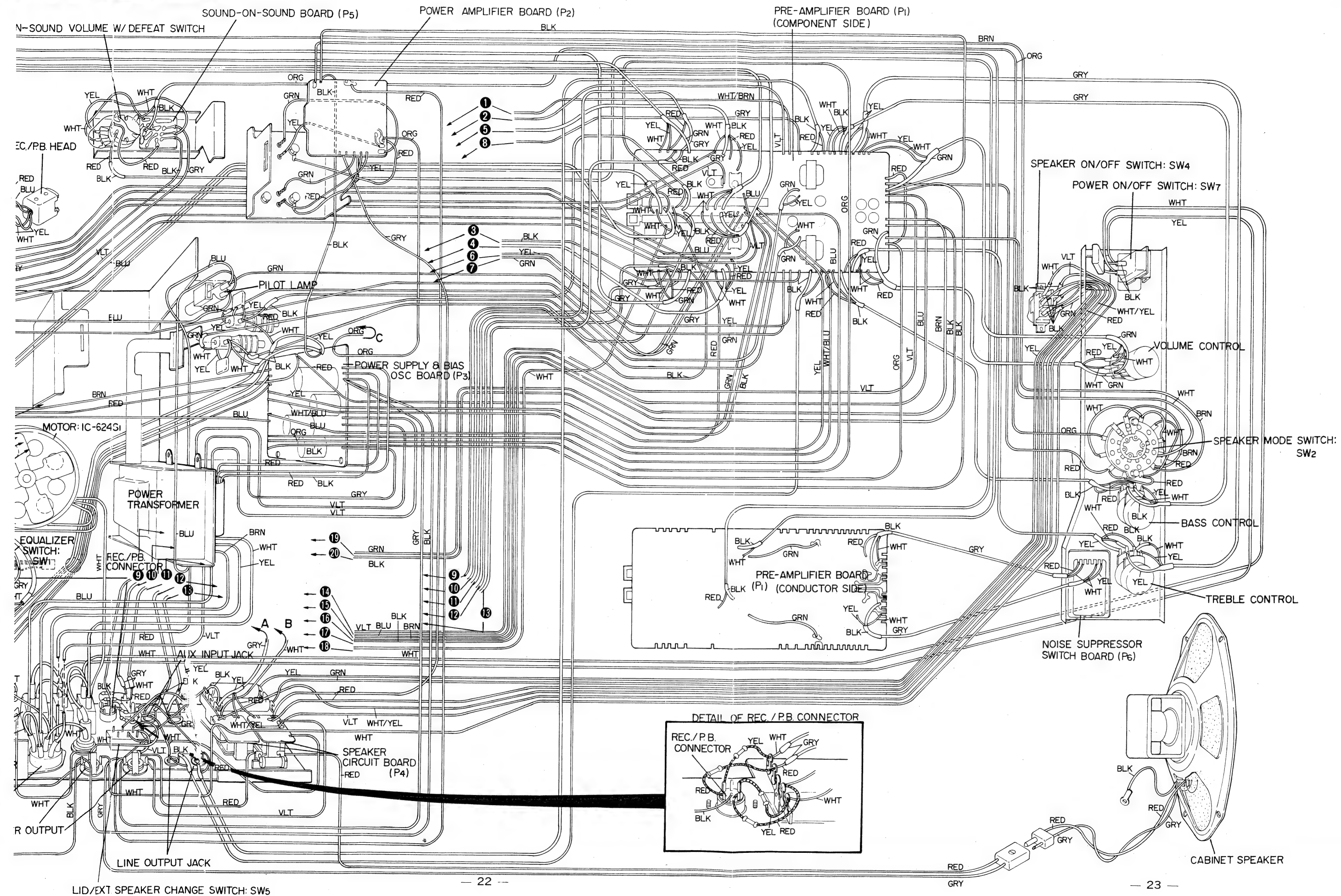
Functions of Mechanism

Tape Transport Mechanism Section



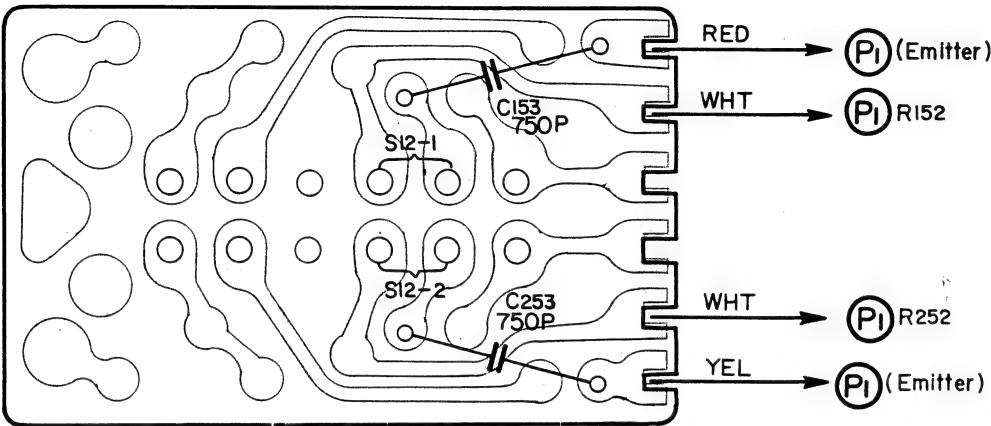
Wiring Diagram



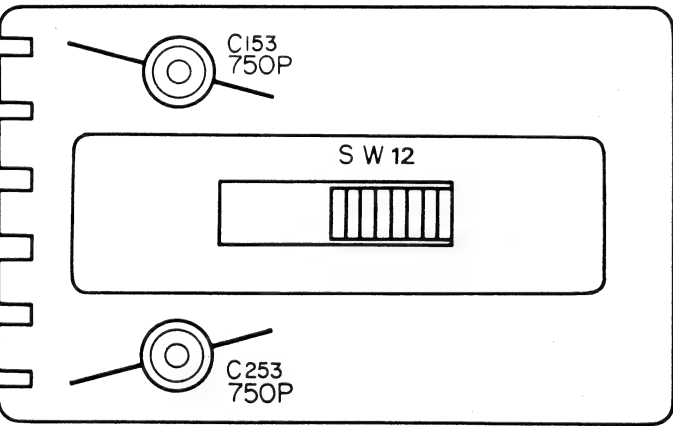


Mounting Diagram

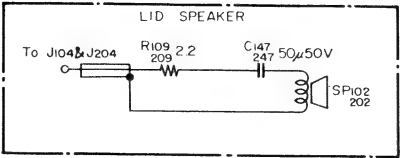
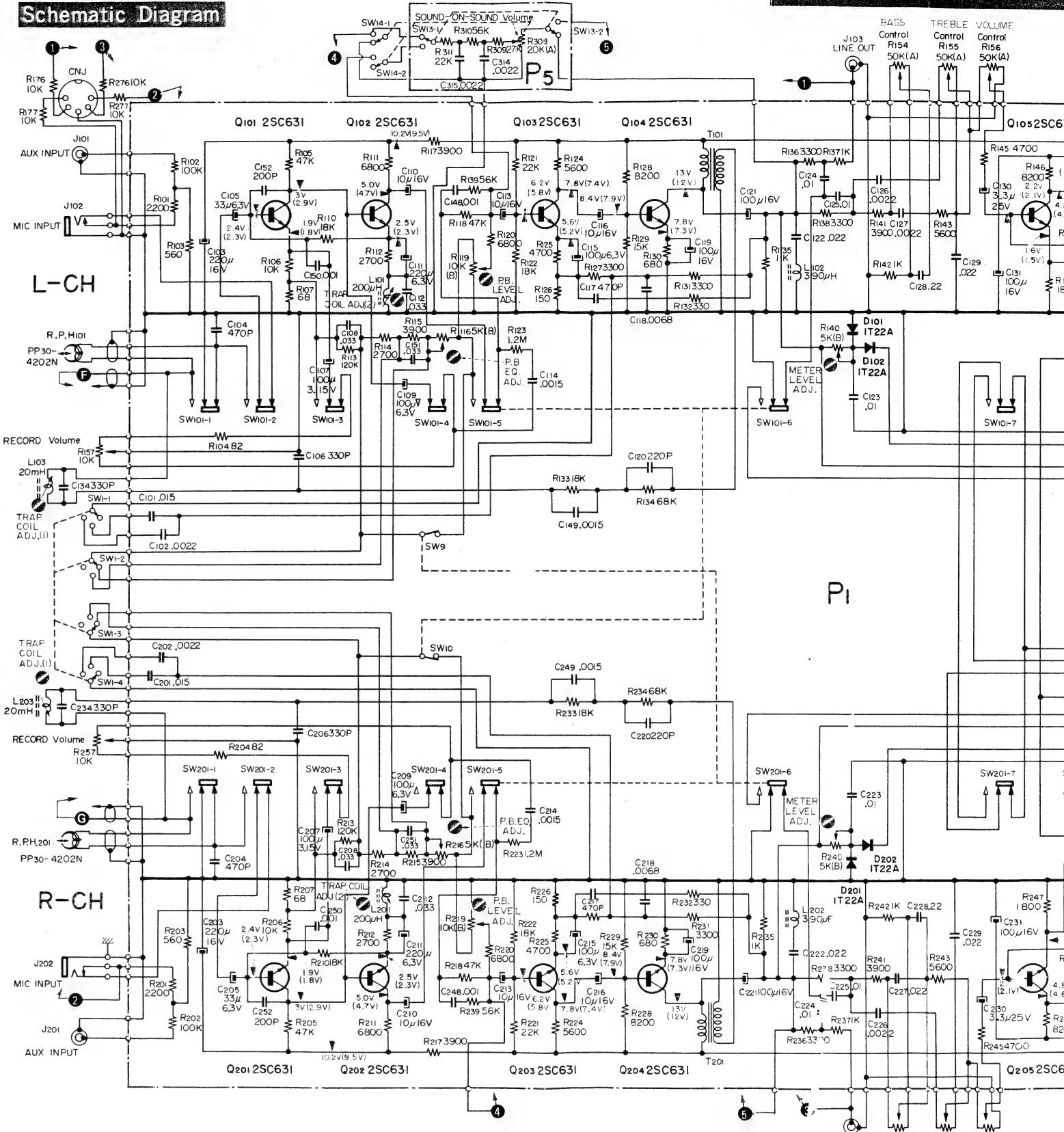
Noise Suppress Switch Board Section
— Conductor Side —



— Component Side —



Schematic Diagram



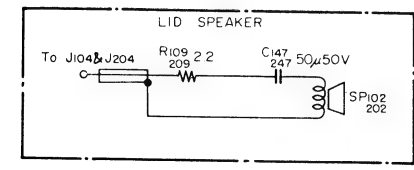
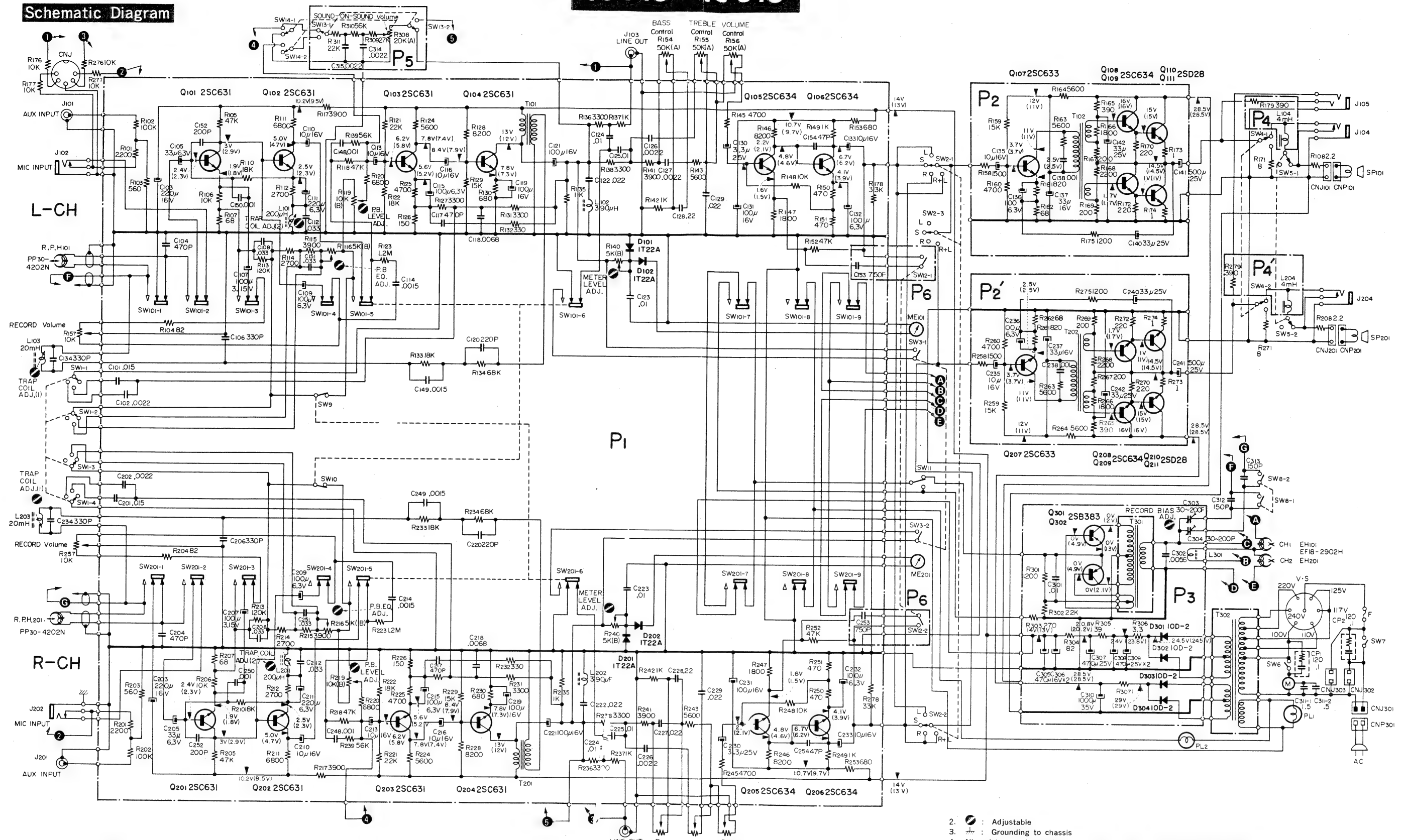
Notes:

1. Switch Positions shown this diagram are as per the table below.

Switch No.	Description	Position
SW _{101, 120}	Record/Playback Switch	Record
SW ₁	Equalizer Switch	7 1/2 ips (19 cm/s)
SW ₂	Speaker Mode Switch	Stereo
SW ₃	Muting Switch	OFF
SW ₄	Speaker ON/OFF Switch	ON
SW ₅	EXT-LID Speaker Change Switch	ON
SW ₆	Automatic SHUT-OFF Switch	OFF

Switch No.	Description	Position
SW ₁	Power ON/OFF Switch	OFF
SW ₅	Bias Control Switch	OFF (1 1/2 ips)
SW _{5, 10}	Monaural Record Switch	ON (3 1/2 ips)
SW ₁₁	Bias ON/OFF Switch	ON
SW ₁₂	Noise Suppressor ON/OFF Switch	FORWARD
SW ₁₃	SOUND-ON-SOUND Channel Selector Switch	OFF
SW ₁₄	SOUND-ON-SOUND Defeat Switch	OFF

Schematic Diagram



Notes:

1. Switch Positions shown this diagram are as per the table below.

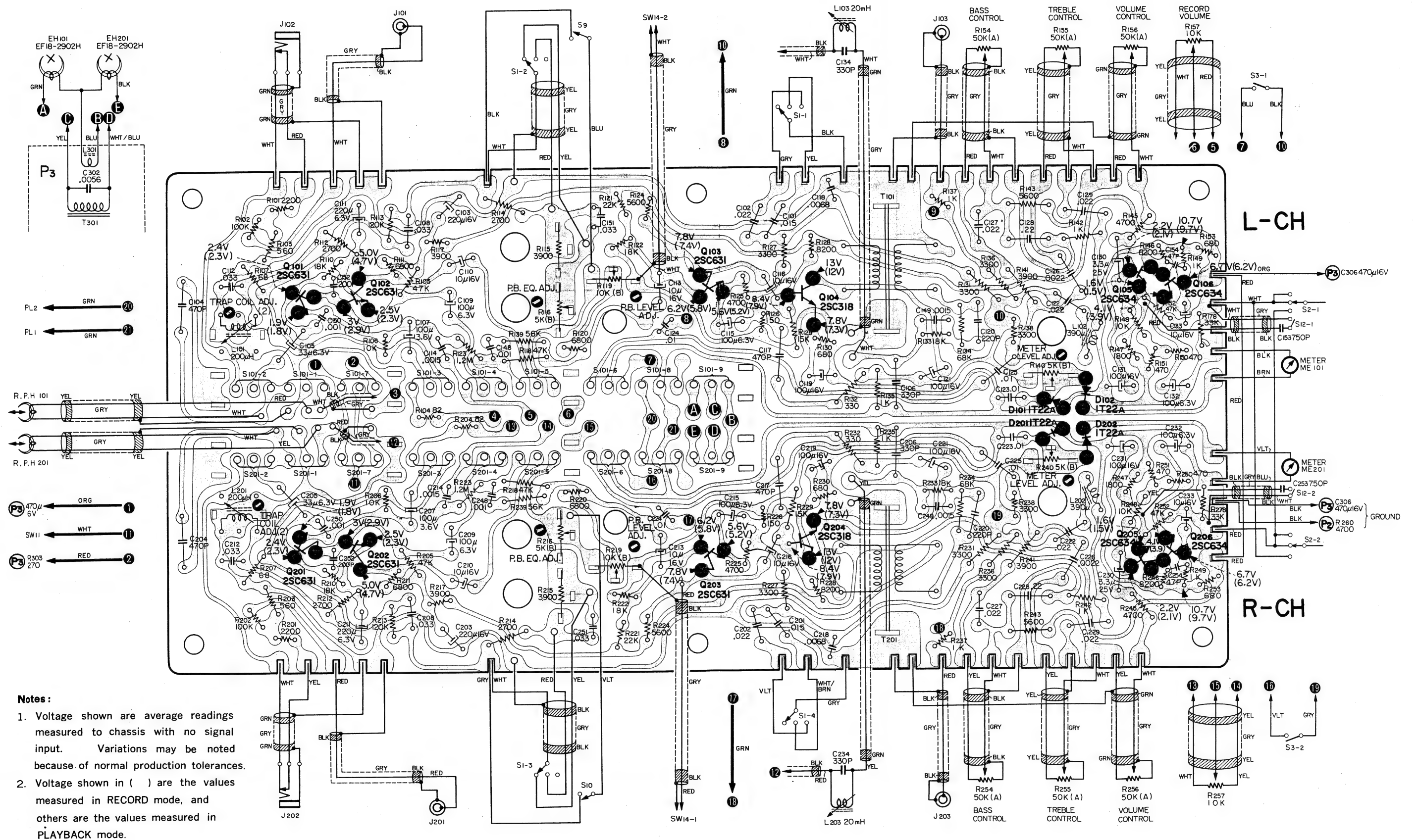
Switch No.	Description	Position
SW _{1, 120}	Record/Playback Switch	Record
SW ₁	7 1/2 ips (19 cm/s)	
SW ₂	Equalizer Switch	Stereo
SW ₃	Speaker Mode Switch	OFF
SW ₄	Muting Switch	ON
SW ₅	Speaker ON/OFF Switch	ON
SW ₆	EXT-LID Speaker Change Switch	ON
SW ₇	Automatic SHUT-OFF Switch	OFF

Switch No.	Description	Position
SW ₇	Power ON/OFF Switch	OFF
SW ₈	Bias Control Switch	OFF (1 1/2 ips, 4.8 cm/s) ON (3 1/2 ips, 9.5 cm/s) & (7 1/2 ips, 19 cm/s)
SW _{9, 10}	Monaural Record Switch	ON
SW ₁₁	Bias ON/OFF Switch	FORWARD
SW ₁₂	Noise Suppressor ON/OFF Switch	OFF
SW ₁₃	SOUND-ON-SOUND Channel Selector Switch	L-CH-R-CH
SW ₁₄	SOUND-ON-SOUND Defeat Switch	OFF

- 2. : Adjustable
- 3. : Grounding to chassis
- 4. All resistors and capacitors are in ohm and μ F, unless otherwise specified.
- 5. The letter (A) or (B) suffixed to rating value of potentiometer indicates its characteristic.
- 6. All the voltage values shown in color are DC unless otherwise noted and measured in PLAYBACK mode with no signal input by using VTM. Voltage values in RECORD mode enclosed in parentheses. Variation may be noted because of normal production tolerance.
- 7. P₁: Pre-Amplifier Circuit Board.
P₂: Power Amplifier Circuit Board.
P₃: Power Supply & Bias OSC Circuit Board.
P₄: Speaker Circuit Board.
P₅: SOUND-ON-SOUND Circuit Board.
P₆: Noise Suppressor Switch Circuit Board.

Mounting Diagram

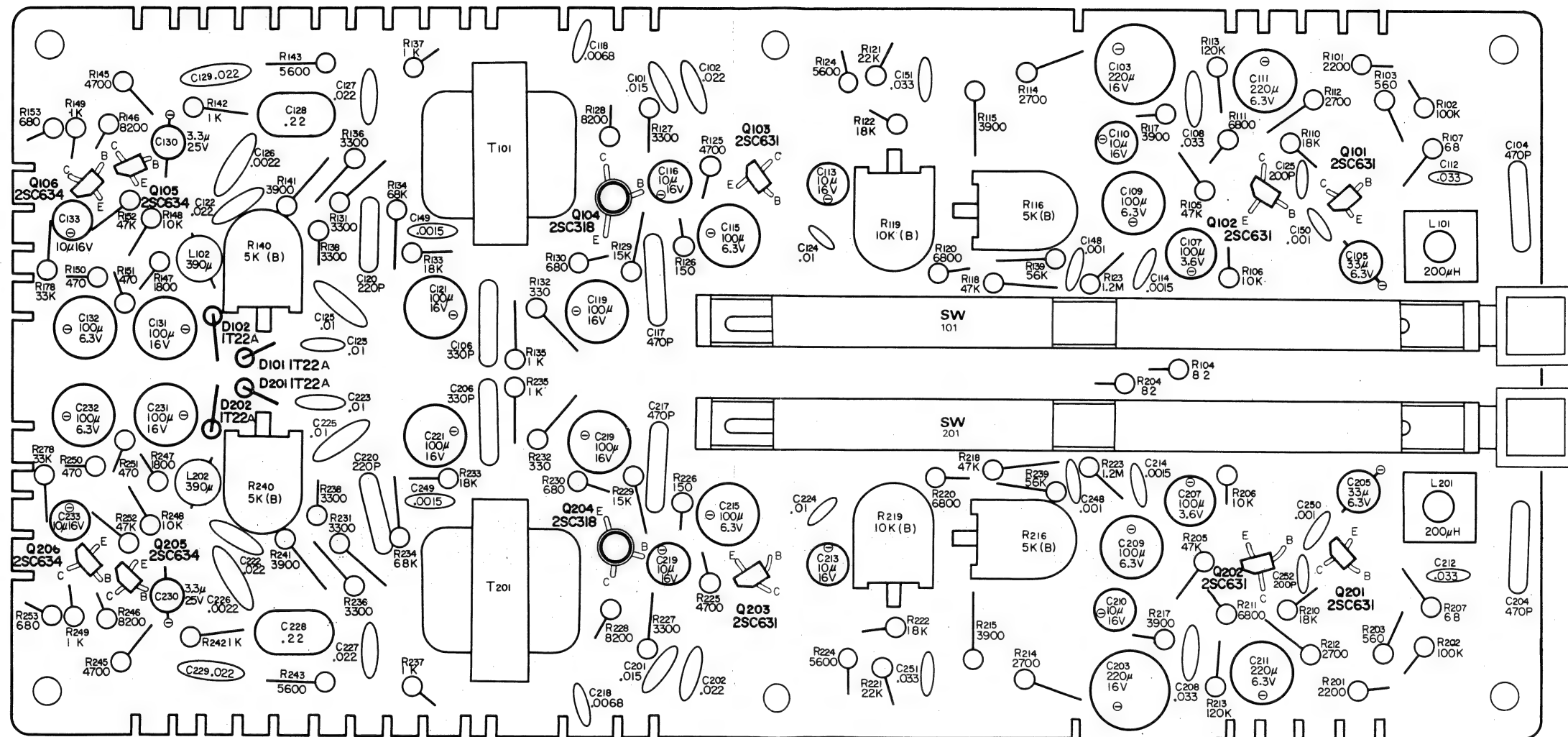
Pre-Amplifier Board Section P₁
— Conductor Side —



Mounting Diagram

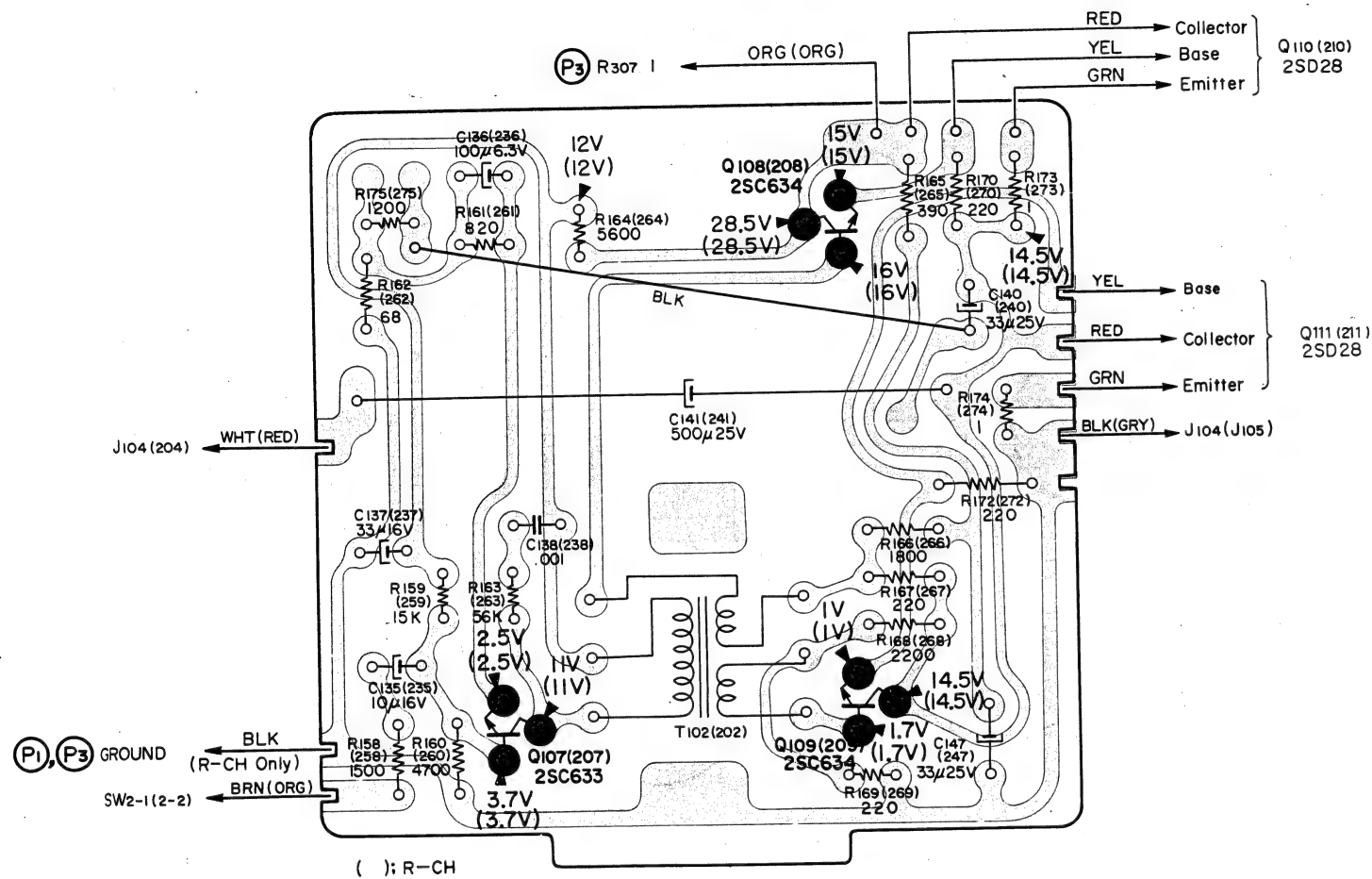
Pre-Amplifier Board Section P₁

— Component Side —



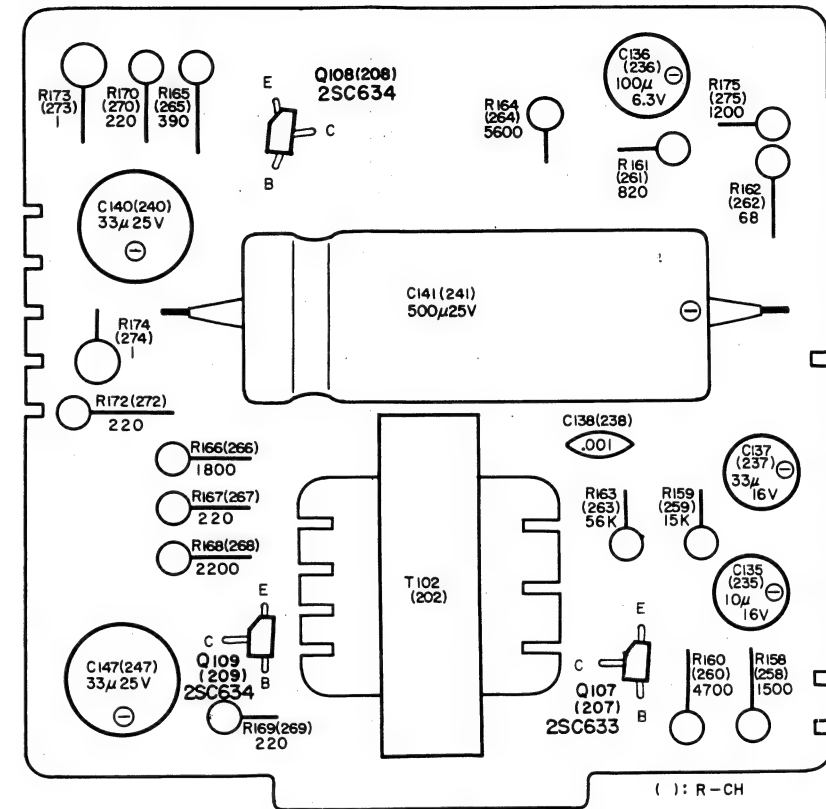
Mounting Diagram

Power Amplifier Board Section P₂
—Conductor Side—



Mounting Diagram

Power Amplifier Board Section P₂ — Component Side —



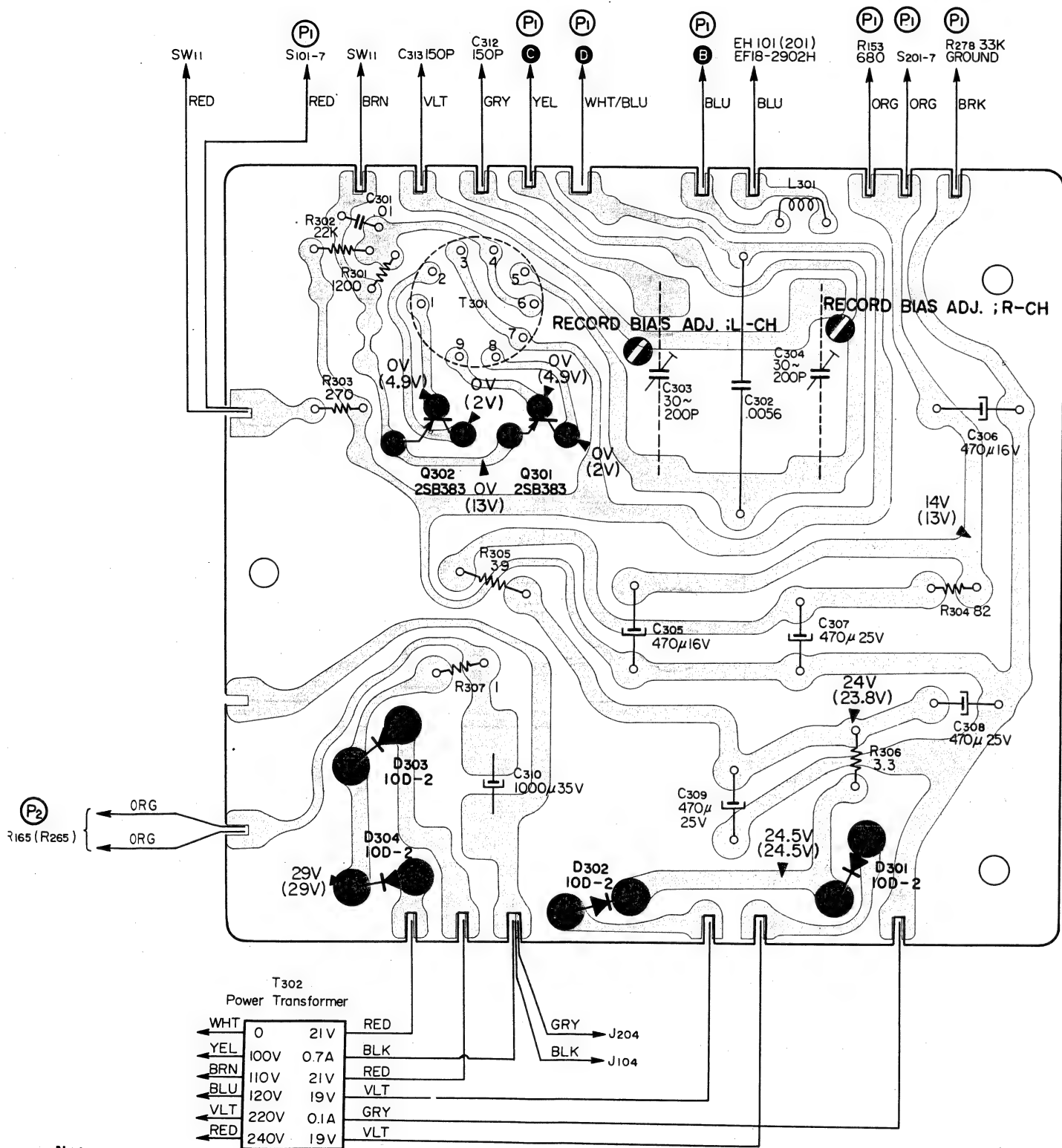
Notes :

1. Voltages shown are average readings measured to chassis with no signal input. Variations may be noted because of normal production tolerances.
2. Voltage shown in () are the values measured in RECORD mode, and others are the values measured in PLAYBACK mode.

Mounting Diagram

Power Supply & Bias OSC Board Section P₃

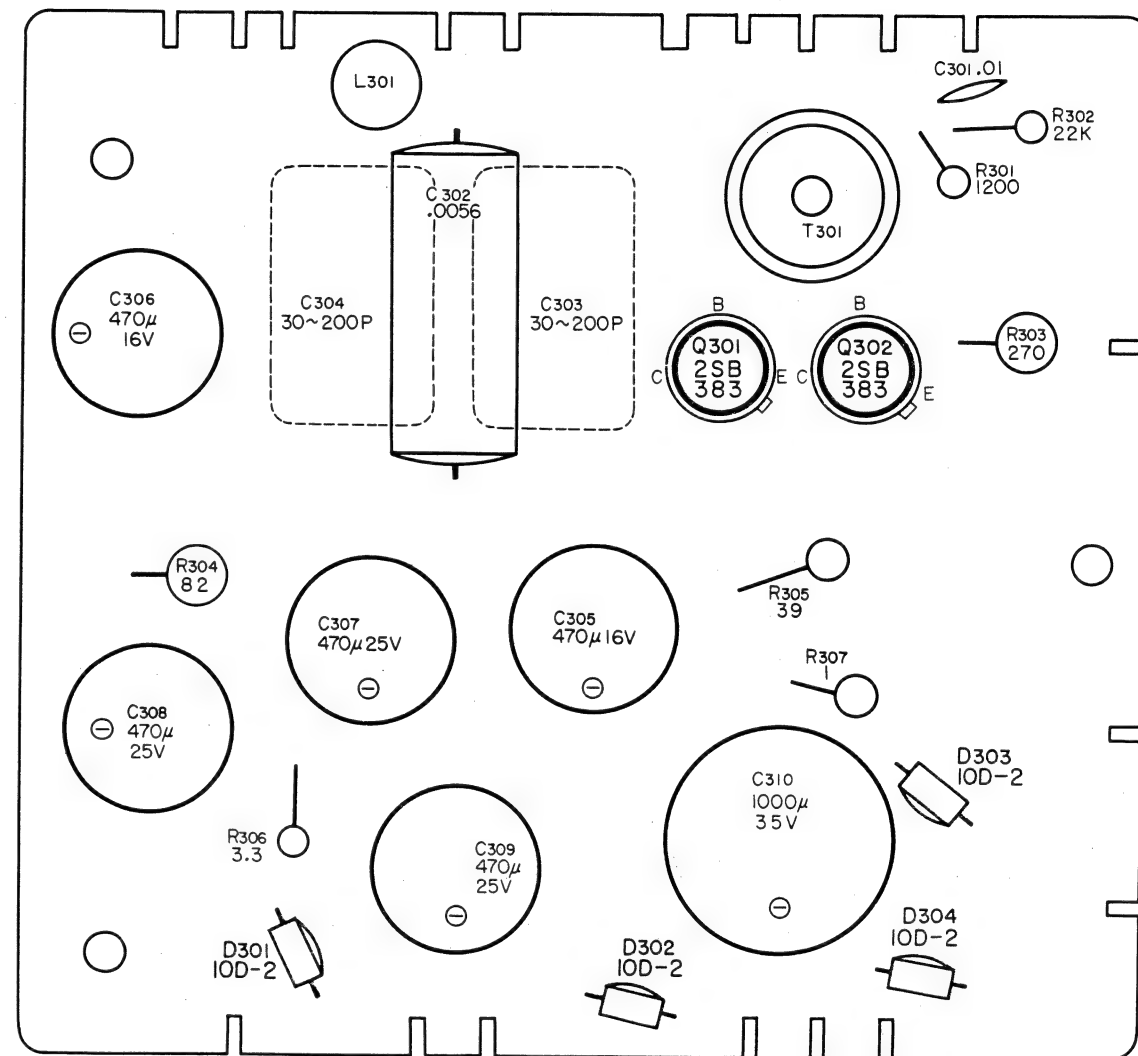
— Conductor Side —



Mounting Diagram

Power Supply & Bias OSC Board Section P₃

— Component Side —

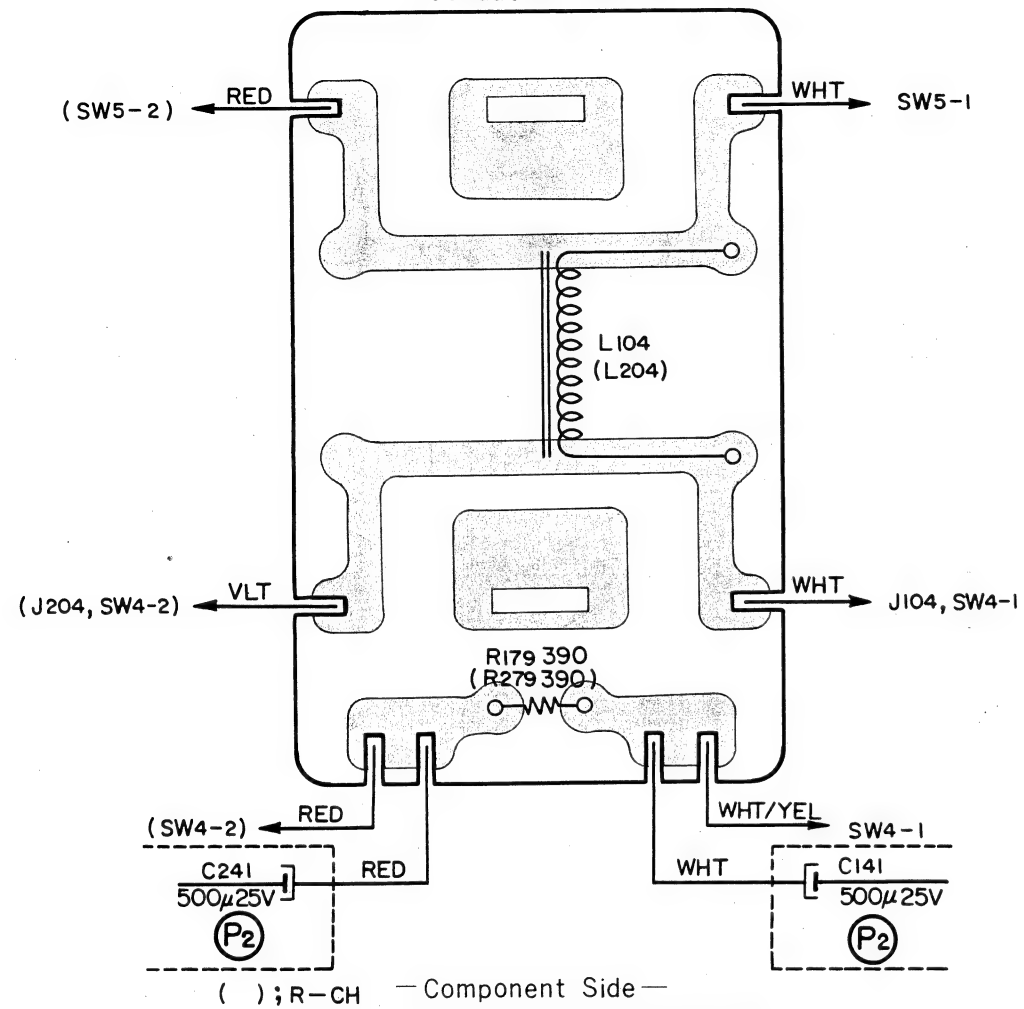


Notes :

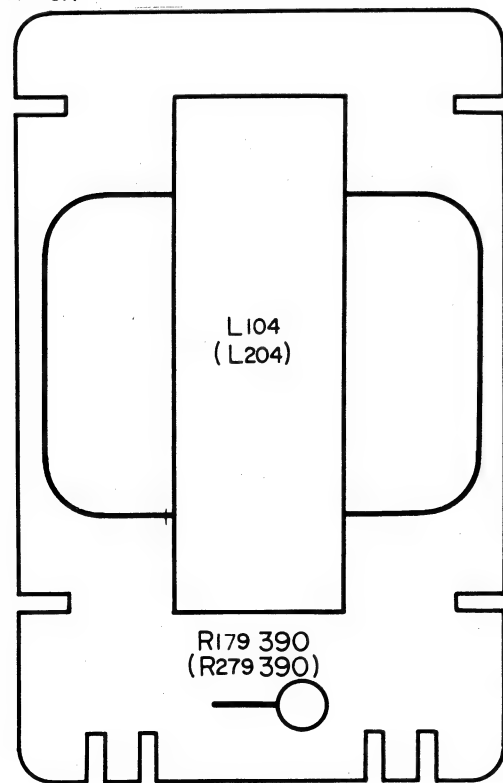
1. Voltages shown are average readings measured to chassis with no signal input. Variations may be noted because of normal production tolerances.
2. Voltage shown in () are the values measured in RECORD mode, and others are the values measured in PLAYBACK mode.

Mounting Diagram

Speaker Circuit Board Section P₁
— Conductor Side —

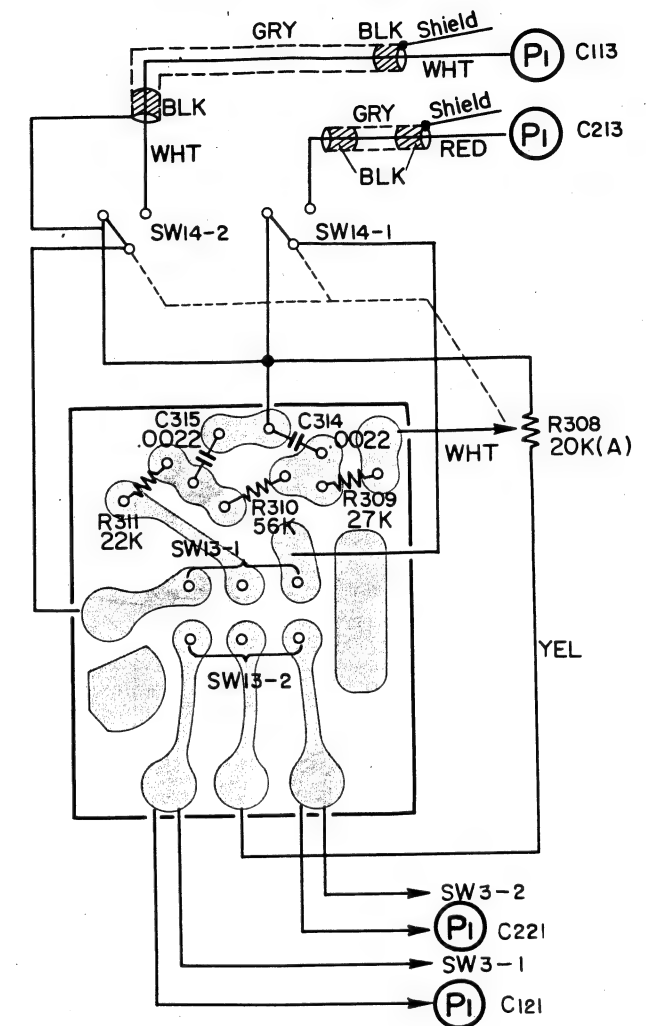


() ; R-CH — Component Side —

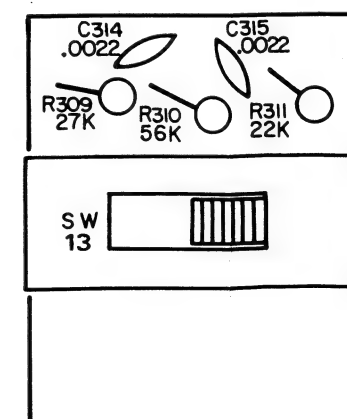


Mounting Diagram

SOUND-ON-SOUND Board Section P₃
— Conductor Side —

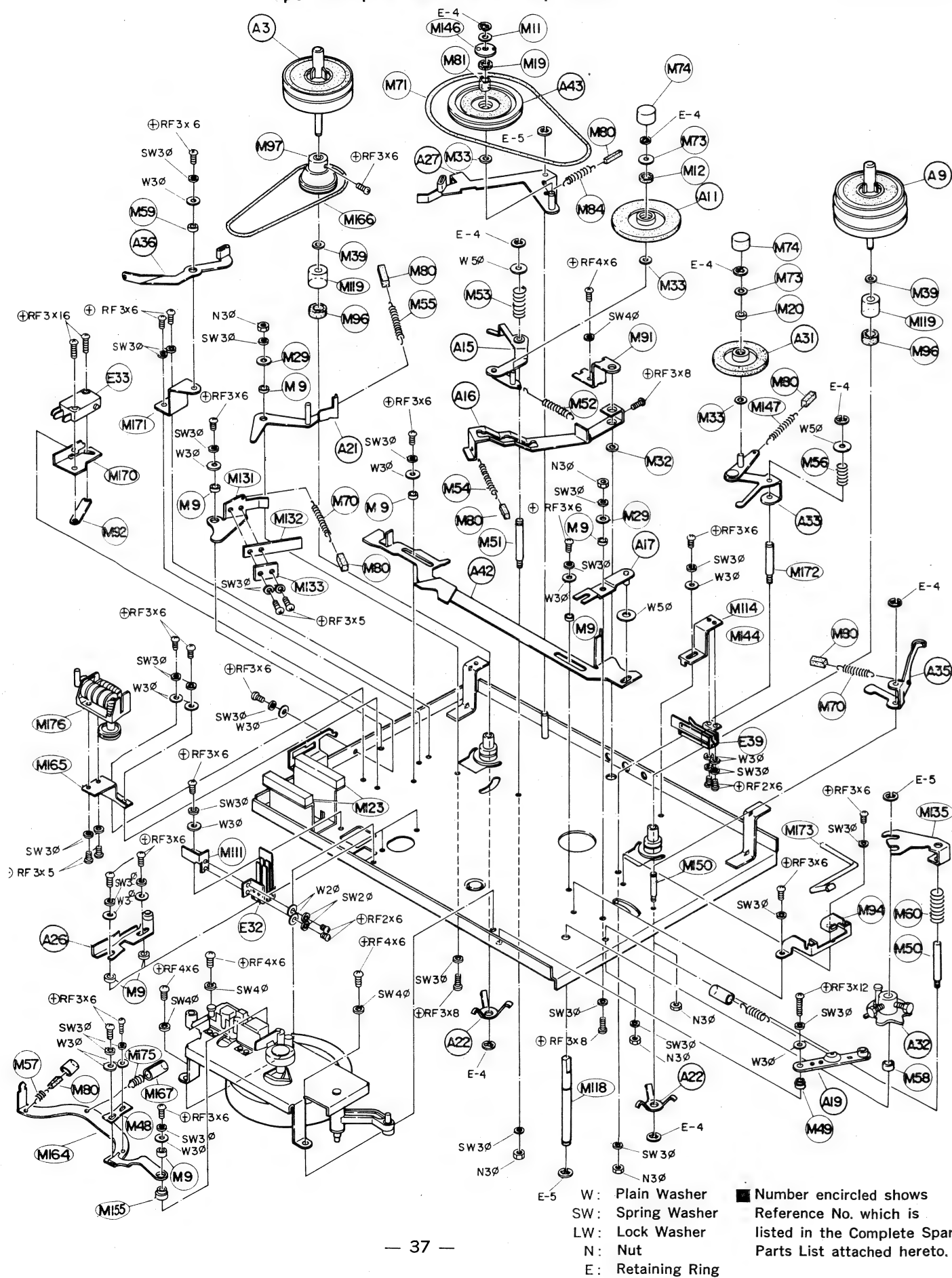


— Component Side —



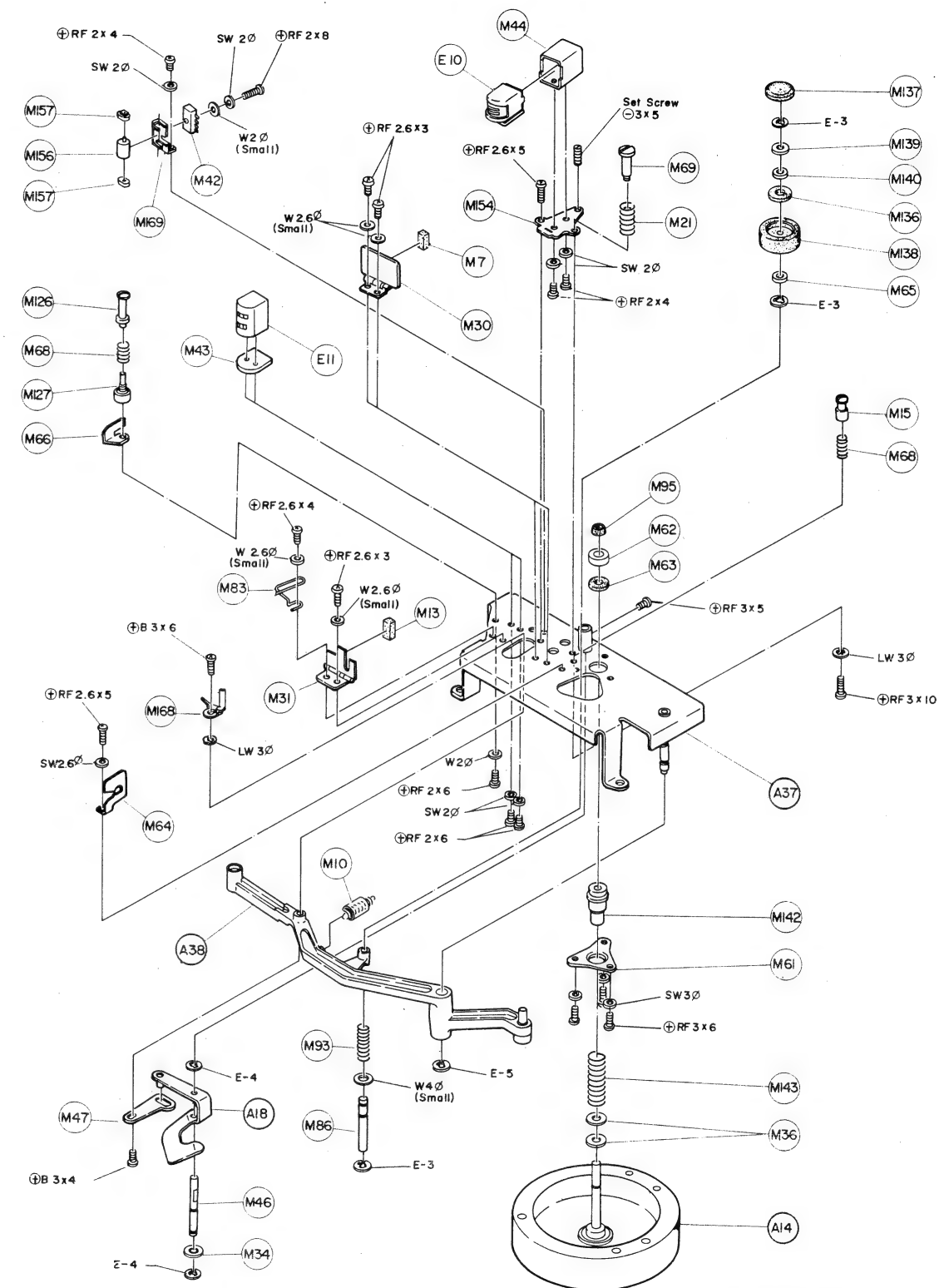
Exploded Diagram

Tape Transport Mechanism—Top View



Exploded Diagram

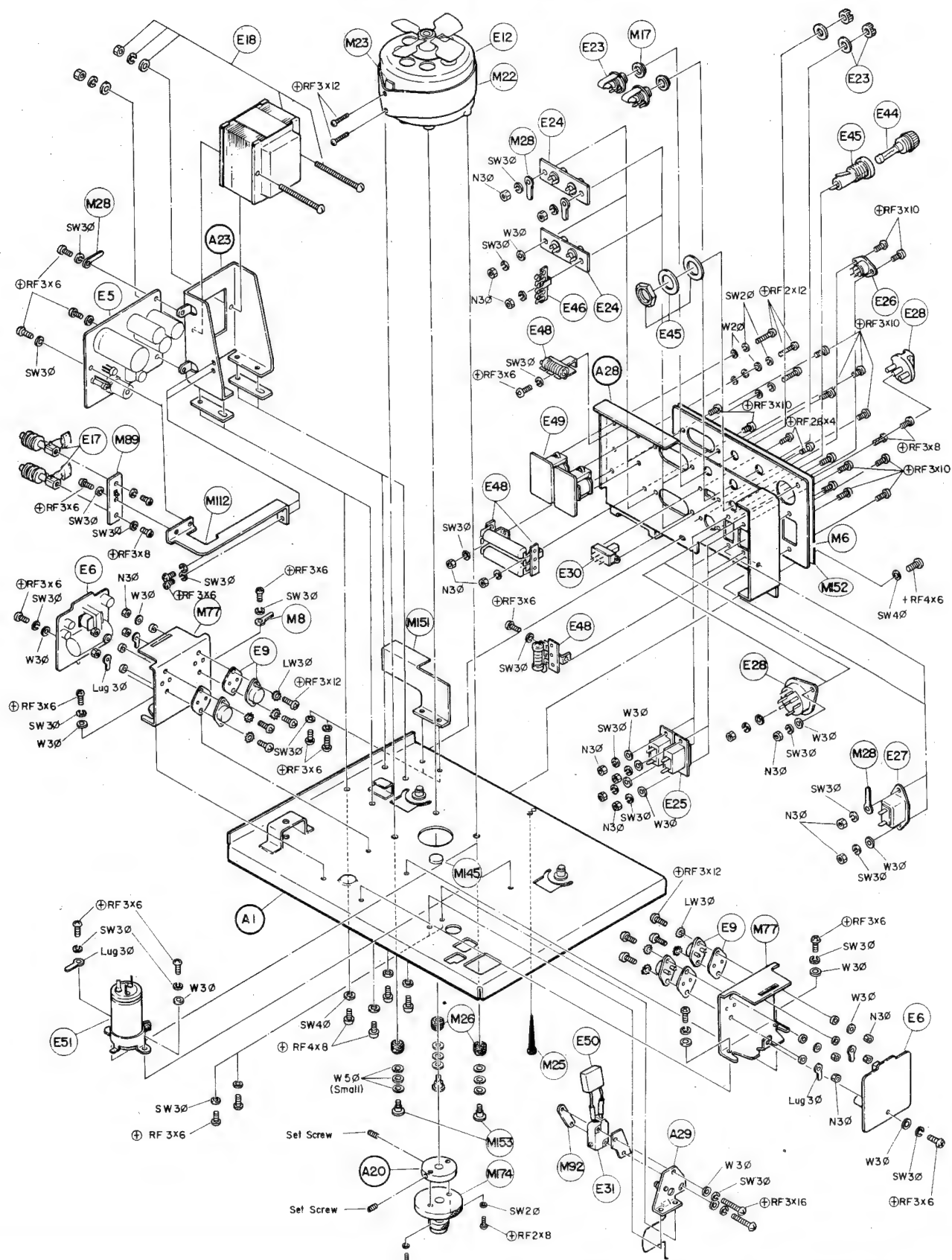
Head Deck—Top View



W: Plain Washer ■ Number encircled shows
SW: Spring Washer Reference No. which is
LW: Lock Washer listed in the Complete Spare
N: Nut Parts List attached hereto.
E: Retaining Ring

Exploded Diagram

Chassis—Bottom View

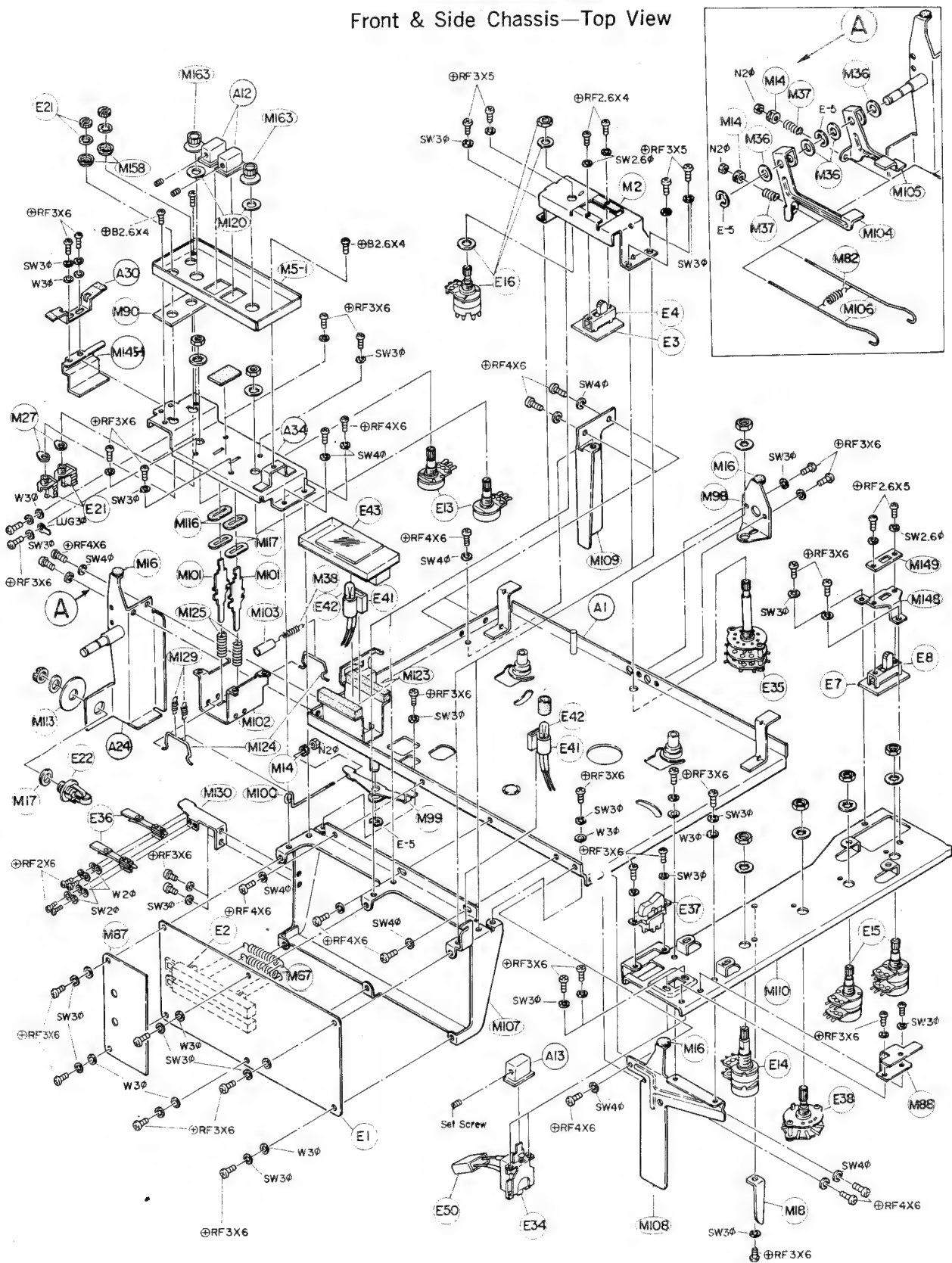


W: Plain Washer
SW: Spring Washer
LW: Lock Washer
N: Nut
E: Retaining Ring

■ Number encircled shows
Reference No. which is
listed in the Complete Spare
Parts List attached hereto.

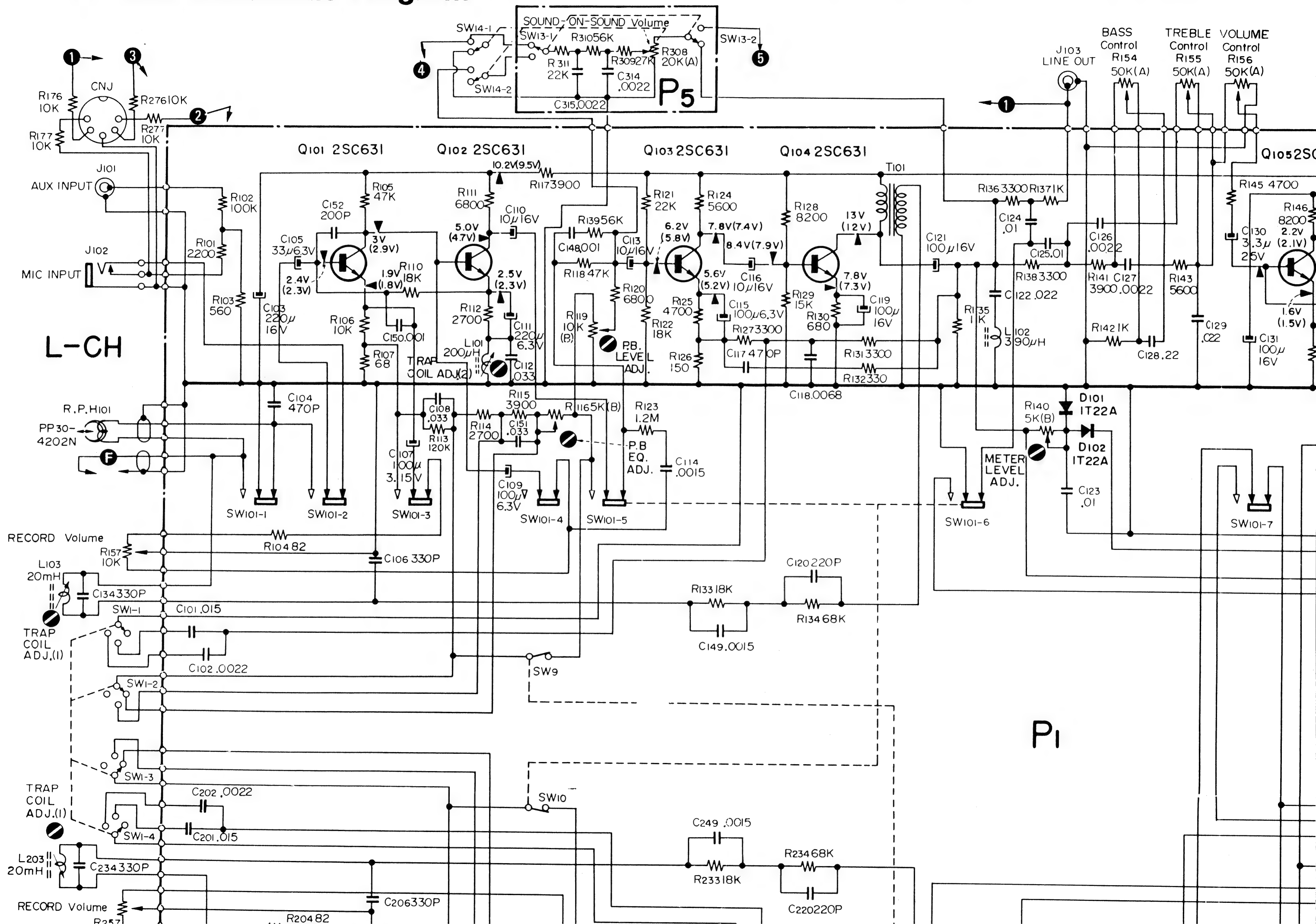
Exploded Diagram

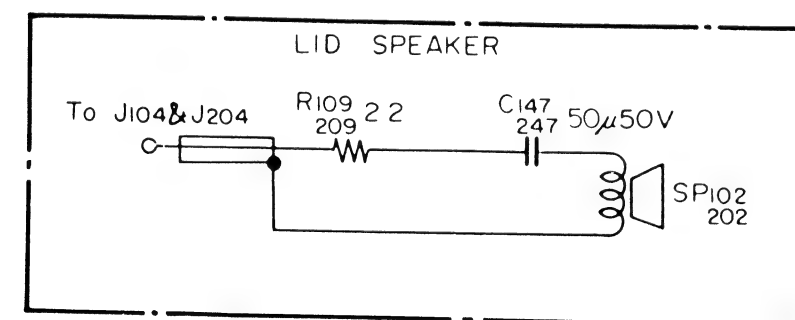
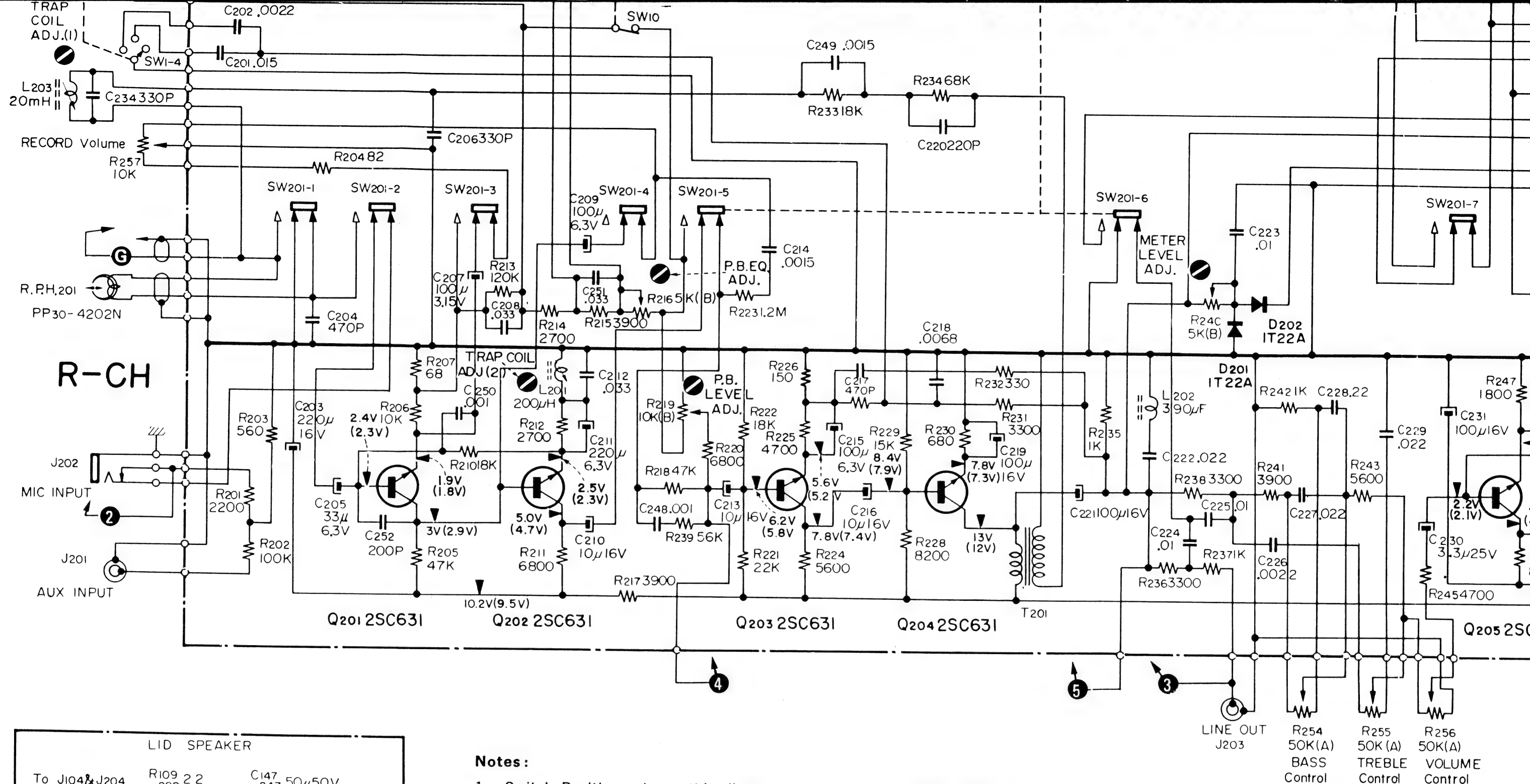
Front & Side Chassis—Top View



- W: Plain Washer ■ Number encircled shows
SW: Spring Washer Reference No. which is
LW: Lock Washer listed in the Complete Spare
N: Nut Parts List attached hereto.
E: Retaining Ring

TC-540 Schematic Diagram



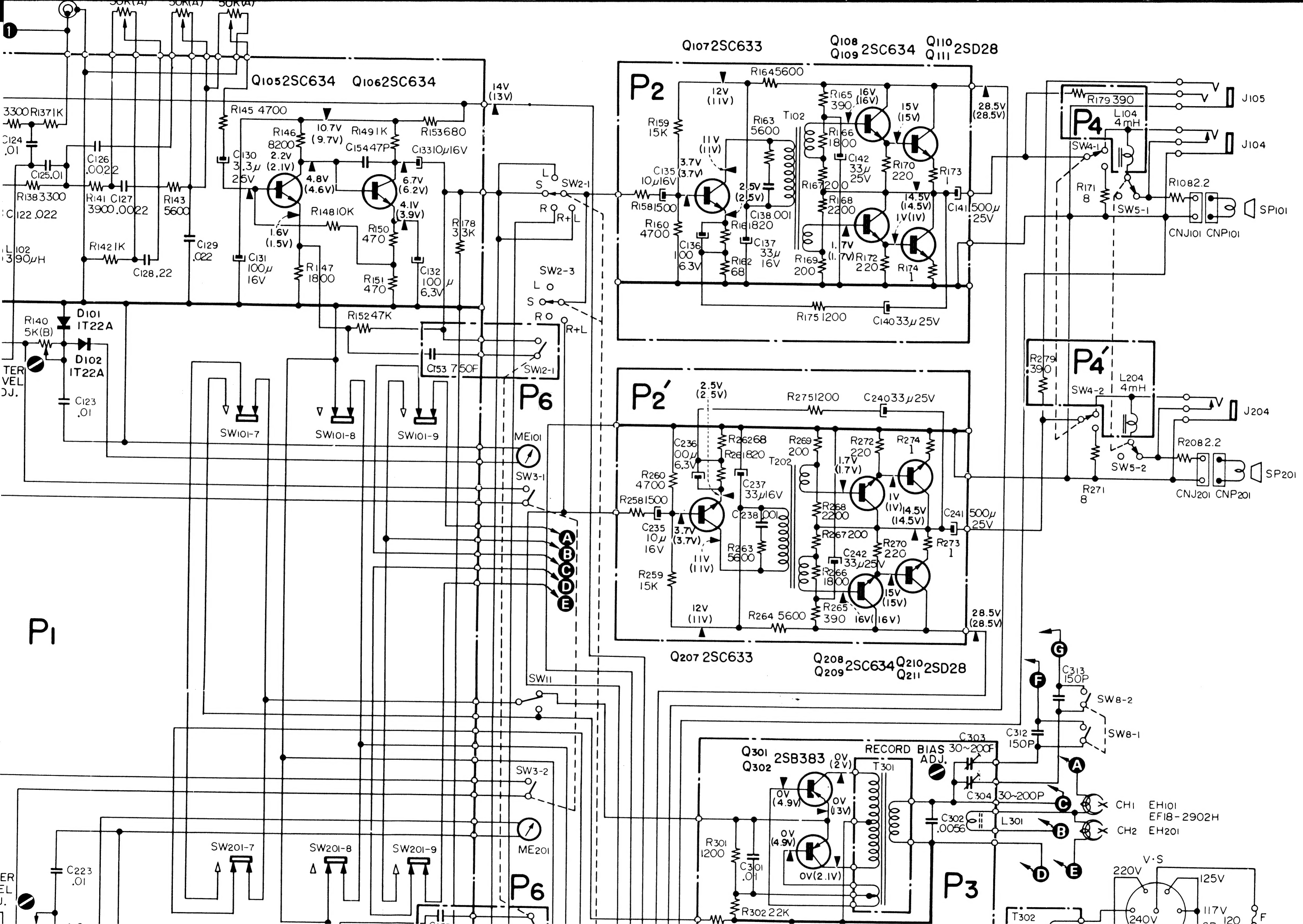


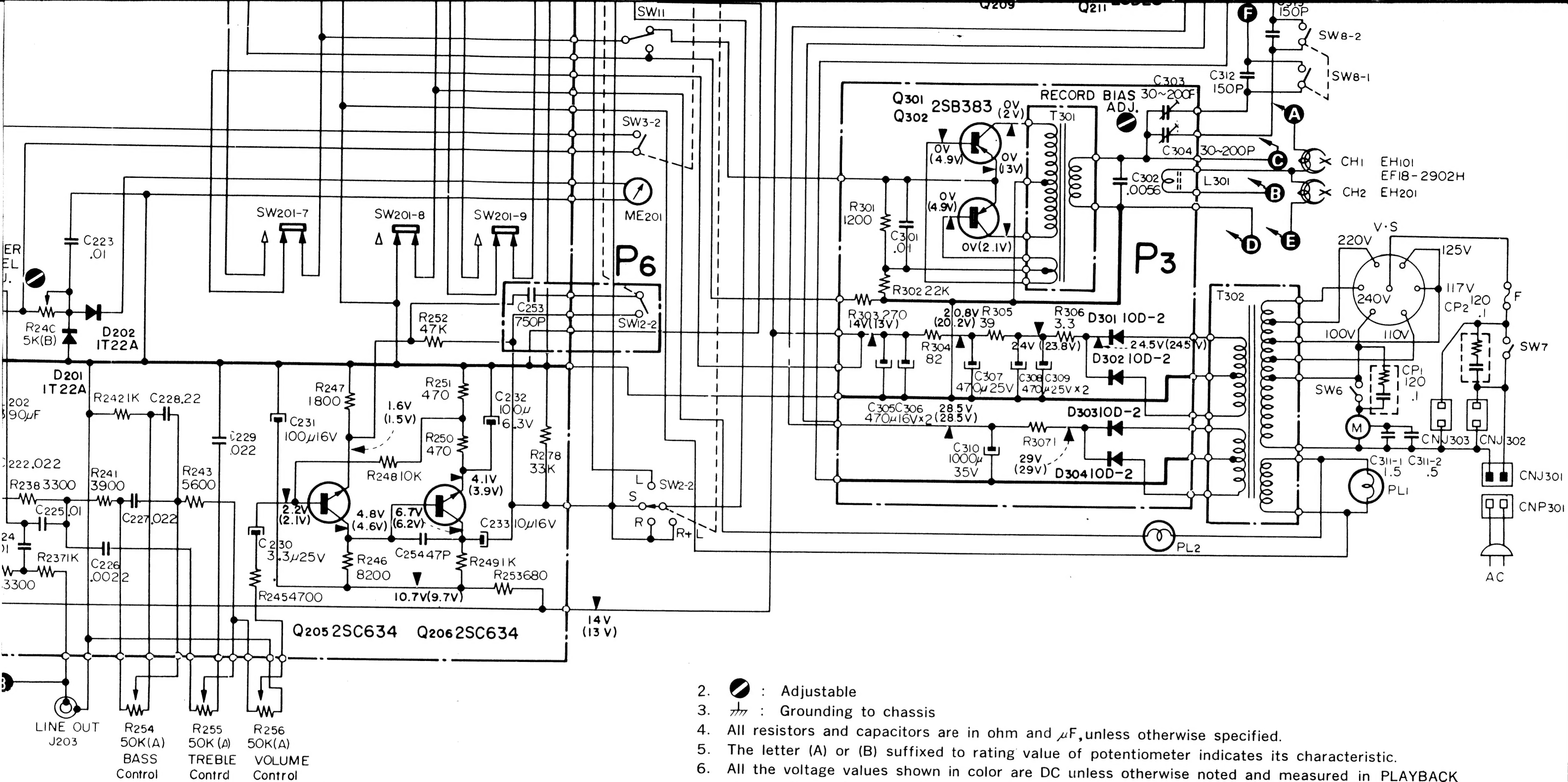
Notes:

1. Switch Positions shown this diagram are as per the table below.

Switch No.	Description	Position
SW _{101, 120}	Record/Playback Switch	Record
SW ₁	Equalizer Switch	7½ ips (19 cm/s)
SW ₂	Speaker Mode Switch	Stereo
SW ₃	Muting Switch	OFF
SW ₄	Speaker ON/OFF Switch	ON
SW ₅	EXT-LID Speaker Change Switch	ON
SW ₆	Automatic SHUT-OFF Switch	OFF

Switch No.	Description	
SW ₇	Power ON/OFF Switch	OFF
SW ₈	Bias Control Switch	OFF (1)
SW _{9, 10}	Monaural Record Switch	ON (3)
SW ₁₁	Bias ON/OFF Switch	ON
SW ₁₂	Noise Suppressor ON/OFF Switch	FORWARD
SW ₁₃	SOUND-ON-SOUND Channel Selector Switch	OFF
SW ₁₄	SOUND-ON-SOUND Defeat Switch	L-CH-R
		OFF

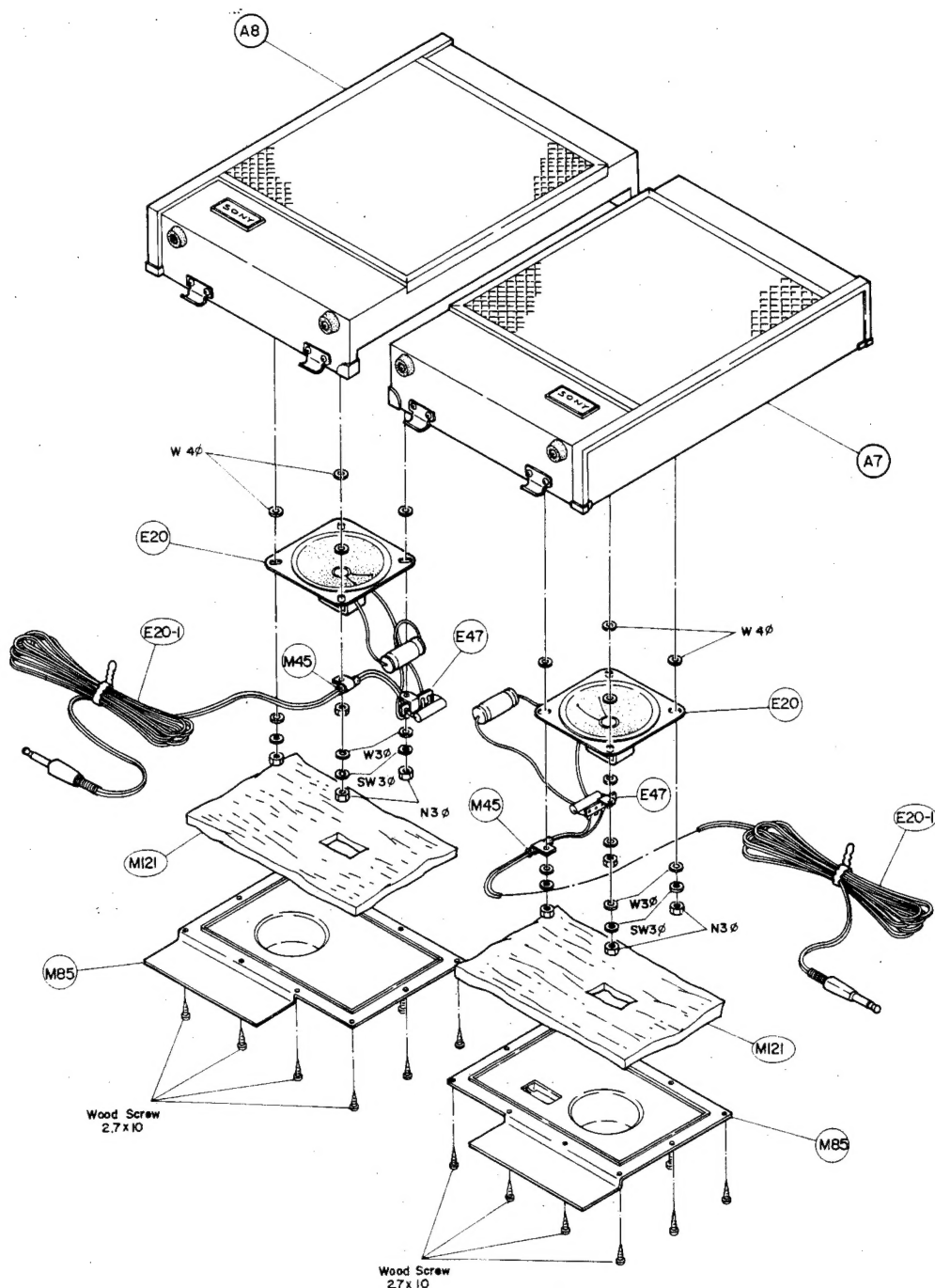




Description	Position
Power ON/OFF Switch	OFF
Speed Control Switch	OFF (1 7/8 ips, 4.8 cm/s) ON (3 3/4 ips, 9.5 cm/s) & (7 1/2 ips, 19 cm/s)
Manual Record Switch	ON
Speed ON/OFF Switch	FORWARD
Noise Suppressor ON/OFF Switch	OFF
SOUND-ON-SOUND Channel Selector Switch	L-CH-R-CH
SOUND-ON-SOUND Defeat Switch	OFF

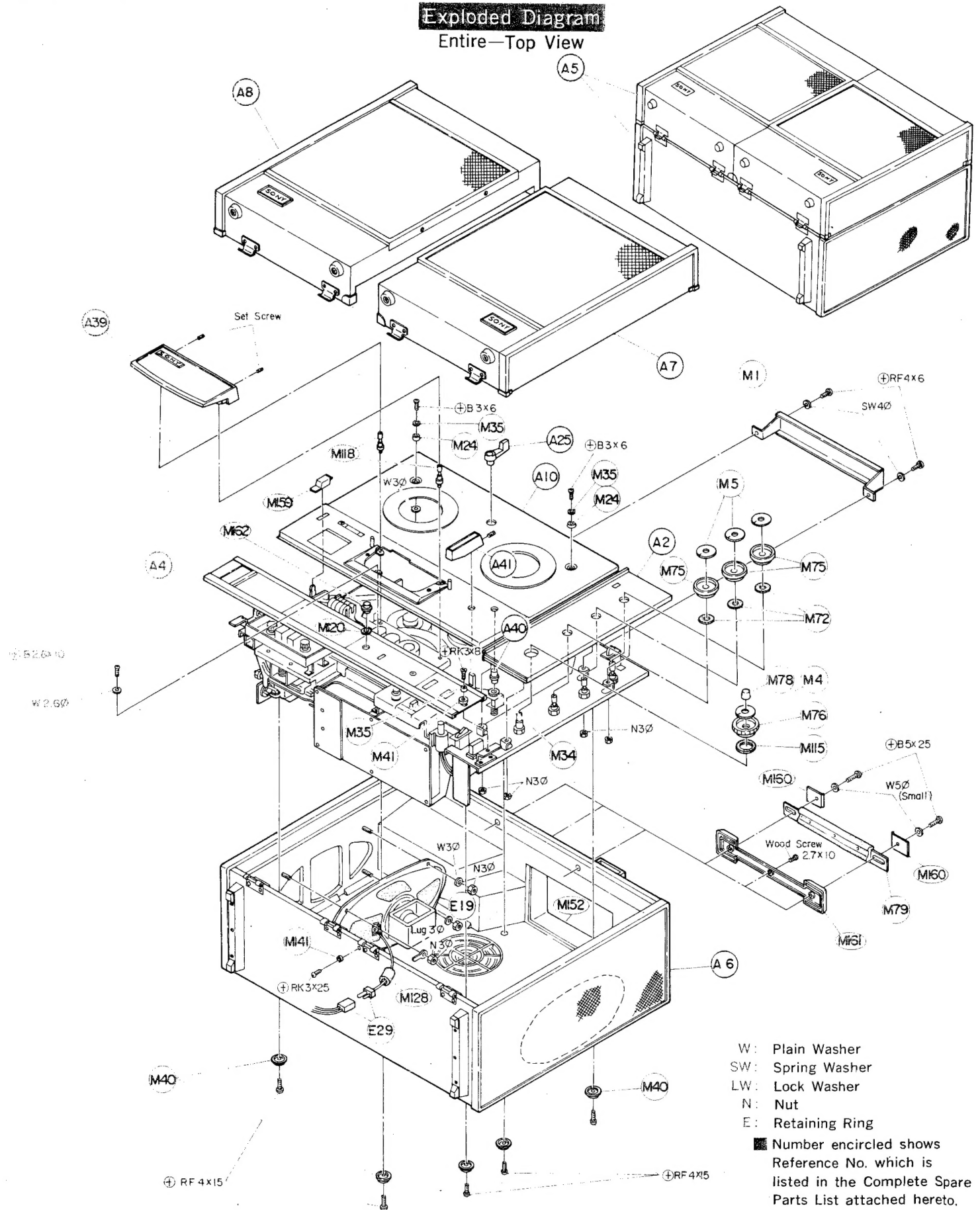
Exploded Diagram

Lid Speakers—Top View



- | | |
|-------------------|------------------------------|
| W: Plain Washer | ■ Number encircled shows |
| SW: Spring Washer | Reference No. which is |
| LW: Lock Washer | listed in the Complete Spare |
| N: Nut | Parts List attached hereto. |
| E: Retaining Ring | |

Exploded Diagram
Entire—Top View



SONY CORPORATION